Tilak Maharashtra University

Bachelor of Computer Applications

Syllabus 2018 & 2019 Batch

BCA – 440-18 JAVA

Course Outline

Chapter 1: The Genesis of Java

Creation of Java, Why it is important to Internet, characteristics of Java

Chapter 2. Basics of Programming

Data types and variables, Arrays operators Types casting and conversion Condition & looping constructs Clauses and methods Overloading Inheritance

Chapter 3: Packages & Interfaces

Defining Packages, Understanding & catch class path Access protection, Importing Packages, interfaces

Chapter 4: Exception Handling

Exception types ,Using try & catch, Nested try, Using throw , throws finally Built in Exception, Creating & using own Exception ,Subclasses

Chapter 5: String Handling

String constructions, String operations, Standard String methods

Chapter 6: Multithreading

Thread Life Cycle, Thread's priorities, synchronization, runnable interface, IsAlive() & Join().Deadlock

Chapter 7: I/O

Streams, byte Streams, Char Streams, Reading console I/P, Writing Console O/P file I/O, sterilization

Chapter 8 : Applet Programming

Applet basics, Simple display methods. Repainting passing parameters

Chapter 9: Event Handling

Event Classes, Sources of Events, Event listeners

Chapter 10: User Interface

AWT classes Windows fundamentals, Component-window, Container-frame

Panel –canvas

Graphics

Colors

Fonts

Labels

Buttons

Checkbox, group list scrollbar

Text field, text area

Menus dialogs.

AWT-controls-layout manager

Chapter 11: Introduction to Swings

Japplet, Icons, Labels, Text fields, Button, Combo Box, Tabbed panes, Scroll Panes, Trees, Tables

Reference Books:

- Java - Complete reference
- Java - O'reilly
- Java Black Book

BCA – 441-18 Principles and Practice of Management -II

Course Outline

1. Staffing:

a. Meaning , definitions
b. Importance
c. Recruitment and selection
d. Training and development
e. Performance appraisal

2. Directing:
a. Meaning , definitions
b. Principles of directing

3. Communication:
a. Meaning and definitions
b. Elements
c. Process
d. Importance
e. Types
f. Principles

4. Motivation:
a. Meaning and definitions
b. Objectives
c. Theories of motivation
a. Maslow's theory of hierarchy of needs
b. Herzberg's two factor theory
c. McClelland's theory
d. Expectancy theory
e. Equity theory
f. Reinforcement theory
d. Special motivational techniques

5. Leadership:
a. Meaning and definitions
b. Features
c. Importance

d. Theories
a. Great man
b. Trait
c. Situational
d. Behavioral
e. Followers
f. Managerial grid
g. Path goal
e. Styles of leadership
a. Autocratic
b. Participative
c. Laissez faire

f. Qualities of a leader

6. Controlling:
a. Meaning and definitions
b. Features
c. Control process
d. Control techniques
a. Traditional
b. Modern

7. Recent trends in management:
a. Social responsibility of mgmt
b. Stress mgmt
c. Total quality mgmt.
d. Disaster mgmt.
e. Event mgmt.
f. M.B.O. (management by objectives) BCA-526 Practical VB.Net

Reference Books:

1. Herald Koontz & O'Donnel : Principles of Management;McGraw Hill
2. L. M. Prasad : Principles & Practice of Management,Sultan Chand, Delhi
3. Dr. P. C. Pardeshi : Business Management,Nirali Prakashan, Pune

BCA – 442-18 Cyber Security Level –II

Course Outline

CHAPTER 1	I.T. ACT 2000 & ITS AMENDMENTS
CHAPTER 2	CASE STUDIES FOR SECURITY ANALYSIS
CHAPTER 3	PC AUDITING & FACING MALWARES
CHAPTER 4	LINUX ESSENTIALS
CHAPTER 5	WEB VULNERABILITIES & ATTACKS
CHAPTER 6	FINANCIAL FRAUDS
CHAPTER 7	TECHNICAL ATTACKS ON WIRELESS & DATABASES
CHAPTER 8	PENETRATION TESTING

BCA – 444-18 Advanced Database Management System

Course Outline

1. **Introduction to RDBMS**
    - What is RDBMS
    - Difference between DBMS & RDBMS

2. **SQL (Structured Query Language)**
    - Subdivisions of SQL
      DDL, DML ,DCL with all commands
    - Data Types
    - The CREATE TABLE Command,
      Constraints in CREATE TABLE
    - Inserting Data into tables
    - Viewing Data in the tables (SELECT with all options)
    - Sorting data in a table (Order By)
    - Group By, Having clause
    - Delete operations
    - Updating the contents of the table
    - Modifying structure of a table
    - Renaming table, Truncating tables, Destroying table
    - Data Constraints (Primary Key, Foreign Key, Unique Key, Check, Default, NOT NULL)
    - Computations done on Table data (Arithmetic Operators, logical operators, range searching, pattern matching(LIKE)
    - Functions (Aggregate functions, Numeric Functions, Character Function, Date function, Conversion function)
    - Sub queries
    - Joins (Simple Join, inner join, outer join, cross join)

3. **Oracle Objects**

    - Views
    - Sequences
    - Index

4. **PL/SQL**
    - Introduction to PL/SQL
    - Architecture of PL/SQL
    - Data types
    - PL/SQL blocks (attribute- %TYPE, %ROWTYPE)
    - Operators, functions, comparisons, numeric, character, date
    - Control Statements
        1. Conditional control (if statement)
        2. Interactive control (Loops)
        3. Sequential Control (GOTO statement)

5. **Error Handling (Exception handling)**
   Pre-defined,

User defined

6. Functions, Procedures

7. Cursors

Definition
Types of cursors (Implicit, explicit)

8. Triggers

9. Packages

10.NoSQL Database

Introduction to NoSQL Database, Types and examples of NoSQL Database- Key value store, document store, graph, Performance, Structured verses unstructured data, Distributed Database Model, Comparative study of SQL and NoSQL, NoSQL Data Models, Introduction to Big Data.

Reference Books:

SQL & PLSQL for Oracle 11G –Black Book
Oracle Database 11G- The complete reference

BCA – 445-18 Environmental Studies

Course Outline

Unit 1 : Multidisciplinary nature of environmental studies

Definition, scope and importance

Need for public awareness.

Unit 2 : Natural Resources :

Renewable and non-renewable resources :

Natural resources and associated problems.

a) Forest resources : Use and over-exploitation, deforestation, case studies. Timber extraction, mining, dams and their effects on forest and tribal people.
b) Water resources : Use and over-utilization of surface and ground water, floods, drought, conflicts over water, dams-benefits and problems.
c) Mineral resources : Use and exploitation, environmental effects of extracting and using mineral resources, case studies.
d) Food resources : World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity, case studies.
e) Energy resources : Growing energy needs, renewable and non renewable energy sources, use of alternate energy sources. Case studies.
f) Land resources : Land as a resource, land degradation, man induced landslides, soil erosion and desertification.

- Role of an individual in conservation of natural resources.
- Equitable use of resources for sustainable lifestyles.

Unit 3 : Ecosystems

- Concept of an ecosystem.
- Structure and function of an ecosystem.
- Producers, consumers and decomposers.
- Energy flow in the ecosystem.
- Ecological succession.
- Food chains, food webs and ecological pyramids.
- Introduction, types, characteristic features, structure and function of the

following ecosystem :-

a. Forest ecosystem
b. Grassland ecosystem
c. Desert ecosystem

d. Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries)

Unit 4 : Biodiversity and its conservation

- Introduction – Definition : genetic, species and ecosystem diversity.
- Biogeographical classification of India
- Value of biodiversity : consumptive use, productive use, social, ethical, aesthetic and option values
- Biodiversity at global, National and local levels.
- Inida as a mega-diversity nation
- Hot-sports of biodiversity.
- Threats to biodiversity : habitat loss, poaching of wildlife, man-wildlife conflicts.
- Endangered and endemic species of India
- Conservation of biodiversity : In-situ and Ex-situ conservation of biodiversity.

Unit 5 : Environmental Pollution (8 lectures)

Definition

- Cause, effects and control measures of :-

  a. Air pollution
  b. Water pollution
  c. Soil pollution
  d. Marine pollution
  e. Noise pollution
  f. Thermal pollution
  g. Nuclear hazards

- Solid waste Management : Causes, effects and control measures of urban and industrial wastes.
- Role of an individual in prevention of pollution.
- Pollution case studies.
- Diaster management : floods, earthquake, cyclone and landslides.

Unit 6 : Social Issues and the Environment

- From Unsustainable to Sustainable development
- Urban problems related to energy
- Water conservation, rain water harvesting, watershed management
- Resettlement and rahabilitation of people; its problems and concerns. Case Studies
- Environmental ethics : Issues and possible solutions.
- Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and

holocaust. Case Studies.

- Wasteland reclamation.
- Consumerism and waste products.
- Environment Protection Act.
- Air (Prevention and Control of Pollution) Act.
- Water (Prevention and control of Pollution) Act
- Wildlife Protection Act
- Forest Conservation Act
- Issues involved in enforcement of environmental legislation.
- Public awareness.

Unit 7 : Human Population and the Environment

- Population growth, variation among nations.
- Population explosion – Family Welfare Programme.
- Environment and human health.
- Human Rights.
- Value Education.
- HIV/AIDS.
- Women and Child Welfare.
- Role of Information Technology in Environment and human health.
- Case Studies.

Unit 8 : Field work

- Visit to a local area to document environmental assets-river/forest/grassland/hill/mountain
- Visit to a local polluted site-Urban/Rural/Industrial/Agricultural
- Study of common plants, insects, birds.
- Study of simple ecosystems-pond, river, hill slopes, etc. (Field work Equal to 5 lecture hours