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SCDL- PGDIT Syllabus (2 years)

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POST GRADUATE DIPLOMA IN INFORMATION TECHNOLOGY (PGDIT)

Total Subject: 18

SUBJECT: HUMAN RESOURCE MANAGEMENT

Chapter 1:

Nature and scope of Human resource development

- Human resource management
- Human resource planning
- Job Analysis / Role Analysis

Chapter 2:

The New Economic Policy and Human Resource Management

- Reflection on the reform package

Chapter 3:

Managing change through continuous improvement

- Using tools and techniques of Human Resource Management
- Bench marking and Business process re-engineering

Chapter 4:

Quality Management

- TQM defined, elements of TQM
- Quality defined, dimensions of quality, quality circles

Chapter 5:

Performance Appraisals

- Role of assessors and reviewers
- Formats
- 360 degree appraisal

Chapter 6:

Performance Counselling

- Phases, Process involved

Chapter 7:

Potential Appraisal

- Objectives and its importance
- Exercises

Chapter 8:

Training and Development

- Identification of Training needs

- Training methodologies, evaluation of results

Chapter 9:

Succession planning

- Elements
- Unexpected succession
- Responsibility

Chapter 10:

Career planning

- Career development cycle
- Model for planned self development

Chapter 11:

Job evaluation

- Introduction
- Techniques
- Factors involved in point rating system

Chapter 12:

Manpower planning

- Definition
- Uses and benefits
- Steps involved in manpower planning

Chapter 13:

Good HRD practice can make a difference

- What constitutes good HR practices
- Impact of good HR practices

Chapter 14:

HRD audit: Basic, Concepts and Components

- Need for HRD Audit
- Methodology
- Limitations

Chapter 15:

Elements of good HRD: Need for realignment

- Approaches to evaluate the HR functions
- HRD score card

Chapter 16:

Recent techniques in human resource management

- (A) Employees for lease
- (B) Moon Lighting by Employees: Blue Moon to Full Moon
- (C) Dual career groups
- (D) Flexitime and Flexiwork
- (E) Training and development
- (F) Management participation in Employees' organisations
- (G) Consumer participation in Collective Bargaining
- (H) Collaborative management- A multi dimensional approach
- (I) Employee's proxy
- (J) Human resource accounting
- (K) Organisational politics
- (L) Exit policy and practice - How to implement a VRS
- (M) Future of Human resource management

Chapter 17:

Human resources in Information Technology Industry

- Best practices in an Industry
- 60 HR predictions for 2008

SUBJECT: FINANCIAL MANAGEMENT

Chapter 1

Finance function

- Approaches to the term Finance
- Scope of finance function
- Goals/Objects of Finance function
- Organisation of Finance function
- The fields of finance
- Finance function in relation with other functions

Chapter 2

Forms of Business organisation

- Proprietary firms, Partnership firms
- Joint stock companies
- Advantages and Disadvantages

Chapter 3

Financial statements

- Nature of financial statements
- Basic concepts in Accounting
- Structure of Financial statements
- Role played by Financial statements
- Limitation of financial statements

- Analysis and Interpretation of financial statements

Chapter 4:

Interpretation of Financial statements (Ratio Analysis)

- Role of Ratio Analysis
- Classification of Ratios
- Illustrative problems with solutions
- Problems for students to solve

Chapter 5:

Interpretation of financial statements (Funds flow / cash flow statements)

- Concepts of funds, Uses, Limitations
- Construction of funds flow statement
- Cash flow statement
- Illustrative problems with solutions

Chapter 6:

Capitalisation

- Importance
- Theories of capitalisation
- Overcapitalisation – Causes, effects and remedies
- Undercapitalisation- Causes, effects and remedies

Chapter 7:

Sources of Long term and Medium Term finance

- Share: Advantages, Disadvantages
- Debentures: Advantages, Disadvantages
- Term Loans, Features of Term Loans
- Public Deposits
- Lease financing, Advantages, Types of Leases
- Retained earnings

Chapter 8:

Capital structure

Part I – Capital structure

- Goals/ Principles of capital structure management
- Factors affecting Capital structure- Internal, External and General

Part II – Cost of Capital

- Concepts of Cost of Capital
- Composite cost of capital
- Illustrations with solutions

Part III – Leverages

- Operating costs – Variable, Fixed, Semi-Variable

- Leverages – Operating, Financial, Combined

Part IV – Theories of Capital structure

- Capital structure and Cost of capital
- Problems for students

Chapter 9:

Capital Market

- Capital Market in general
- Intermediaries in Capital market
- Credit rating, Methodology, Limitation
- Venture capital

Chapter 10

Capital Budgeting

- Importance of Capital budgeting
- Process of Capital budgeting – Evaluations, Selection, Execution
- Cash flows, Time value for Money
- Illustrations with solutions
- Relevance in capital budgeting decisions
- Techniques of evaluation of capital budgeting
- Proposals – Advantages, Disadvantages
- Limitations of capital budgeting
- Planning, Organisation and Control of capital expenditure
- Capital rationing
- Capital budgeting and risk
- Illustrations with Solutions
- Pay back period, NPV, ARR, IRR
- Problems to solve

Chapter 11

Working Capital management

- Working capital- The Term
- Principles of working capital management
- Factors affecting working capital management
- Financing of Working capital Requirement
- Control over working capital – Daheja committe, Tandon Committe, Chhore Committe, Marathe Committe, Nayak Committe and Vaz Committe
- Illustrative problems with solutions

Chapter 12

Management of Cash

- Motives of Holding Cash
- Estimation of cash requirement
- Principles of cash management
- Illustrative problems with solutions
- Problems to solve

Chapter 13

Management of receivables

- Object
- Areas covered –Credit Analysis, Credit terms, Financing receivables, Credit collection, Monitoring of receivables
- Techniques available on Macro and Micro basis
- Factoring, Bill discounting, Advantages, Disadvantages
- Illustrative problems with solutions
- Problems to solve

Chapter 14

Management of Inventory

- Categories of Inventory
- Motives of Holding Inventories
- Objects of Inventory Management
- Techniques of Inventory management
- Inventory levels, Calculation of Levels,
- Illustrations with solutions
- ABC Analysis
- Problems to solve

Chapter 15

Dividend policy

- Factors determining the Dividend policy, External and Internal
- Choosing of Dividend policy
- Forms of Dividend payment
- Bonus Shares – Advantages and Disadvantages

SUBJECT: NETWORKING CONCEPTS

Unit 1

Introduction to Computers

- Introduction
- Essential elements of a Computer
- Types of hardware
- Types of Software
- Types of Computers
- History of computers
- Summary

Unit 2

Numbering system and block diagram of a computer

- Introduction
- Types of Numbering systems
- Conversion of numbers

- Block diagrams of a Computer
- Summary

Unit 3

Input –Output devices

- Introduction
- Input devices
- Output devices
- Communication devices
- Storage devices
- Summary

Unit 4

Networking

- Introduction
- Advantages of Networking
- Types of networking
- Network configuration
- Network devices
- Summary

Unit 5

Networking topologies

- Introduction
- Types of topologies
- OSI Model
- Summary

Unit 6

Communication Media

- Introduction
- Basic elements of a communication system
- Data transmission
- Communication media
- Factors influencing media selection
- Long distance communication
- Summary

Unit 7

Data Transmission

- Introduction
- Concepts of packet and frame
- Data stuffing
- Transmission error
- Summary

Unit 8

Media access methods

- Introduction
- Media access methods
- Internet protocols
- Internet Control message protocol (ICMP)
- Transmission Control protocol (TCP)
- User datagram protocol
- Application layer protocols
- Summary

Unit 9

Network security

- Introduction
- Network security
- Classification of Networks
- Firewalls
- Summary

Unit 10

Virtual Private Network and Internet security

- Introduction
- Evolution
- Approaches
- VPN protocols
- Summary

Unit 11

Internet

- Introduction
- Components of the Internet
- World wide web
- Pages on the web
- Retrieving documents from the web
- Web browsers
- Advancements in web technologies
- Summary

Unit 12

Storage Area Network (SAN)

- Introduction
- Storage Area Network
- Benefits of Storage Area Network
- Network attached storage
- Network attached storage Vs Traditional file servers
- Network attached storage Vs Storage Area Network

- Voice over Internet protocol
- Summary

SUBJECT: OBJECT ORIENTED ANALYSIS AND DESIGN

Unit 1

Introduction

- Introduction
- Structure and classes
- Encapsulation
- Inheritance
- Polymorphism
- Dynamic binding
- Object hierarchy
- Summary

Unit 2

Object oriented Programming basics

- Introduction
- OO approach and technologies
- Methods and Methodologies
- Object properties
- Classes and Objects
- Object oriented system and development cycle
- Object oriented programming language (OOPL)
- Introduction to OOSAD
- Summary

Unit 3

Unified Approach (UA) and Unified Modelling Language (UML)

- Introduction
- Evolution of UML
- Introduction to Unified Approach (UA)
- Layered approach to OO Software development
- Unified modelling language(UML)
- UML diagrams in UA
- Summary

Unit 4

Object oriented Analysis (OOA)

- Introduction
- Conventional Vs OO Approach
- Basic tasks
- OOA Methodologies
- RDD(Requirements definition and description)
- The Analysis process
- Domain Analysis
- Generic components of OOA Model

- OOA process
- CRC Modelling
- Structures and hierarchies
- Subjects and Subsystems
- Object relationship model
- The object behaviour model
- Methods and Messages
- Summary

Unit 5

Object Oriented Design (OOD)

- Introduction
- Four layers of OO Design pyramid
- Conventional Vs OO Approach
- Bertrand Meyer's recommendations
- Suh's Nam recommendation
- Review of Object oriented methodologies
- Fundamentals of OO Design
- Design patterns
- The OO Design process
- Layer classes
- Class Design
- Summary

Unit 6

Object Oriented Database management systems (OODBMS)

- Introduction
- Example of Bank transactions
- Relational database management systems(RDBMS)
- Object oriented database (OODB)
- Related Terms
- Object Oriented Database Management Systems (OODBMS)
- A Three schema Architecture
- Mapping of OODBMS to RDBMS
- Example of Railway reservation system
- Summary

Unit 7

Object oriented testing

- Introduction
- Fundamental concepts of OO testing
- Test as an Object
- Jacabson's comments on OO Testing
- Scope of OO Testing
- Some tips to eliminate flaws
- Testing OOA and OOD models
- Berard's approach for OO Test case design
- Encapsulation and Inheritance
- Fault based testing

- OO Programming and Testing
- Testing methods applicable at class level
- Interclass test case design
- Summary

Unit 8

Metrics of OOA

- Introduction
- Measure, Measurement and Metrics
- What to measure
- Mccabe Cyclomatic Complexity
- Objectives of OO Metrics
- Salient features of Metrics
- The CK metrics suite
- The Lorenz and Kidd Metrics
- Metrics for Class operation
- Metrics for OO Testing
- Metrics for OO projects
- Summary

Unit 9

Simulation of electrical power system network

- Introduction
- The problem statement
- The layout of SLIDE (single Line diagram editor)
- Requirements
- Integration of SLDE with other application
- Modules
- System design
- Database applications
- Implementation
- Observations
- Summary

SUBJECT: E- BUSINESS

Unit 1

- Introduction
- The Internet
- The beginning of the Internet
- Computer networks
- Technology Overview
- Packet switched networks
- Internet protocols
- Internet service provider
- Global Internet connectivity
- Summary

Unit 2

The WEB

- Introduction
- Domain names
- Domain name registration
- The website
- HTML and the web
- Markup languages – SGML,HTML,CML,XHTMK
- Web browsers
- Summary

Unit 3

E-Commerce

- Introduction
- E-Commerce
- Traditional commerce and electronic commerce
- Understanding portals
- Understanding e-business
- Types of e-business websites and classification
- Summary

Unit 4

The web presence

- Introduction
- System Architecture
- Web presence strategy
- Brick to Click approach
- Offline presence and online presence
- Content and information
- The revenue model
- Understanding the consumer behaviour – Online
- Summary

Unit 5

Internet Marketing

- Introduction
- Designing strategy
- Online branding
- Advertising campaign
- Web promotions
- Search engine positioning
- Key word auctioning
- E-CRM
- Summary

Unit 6

Technologies and E-Commerce

- Introduction
- Web server hardware
- Web server software and operating systems
- Static and Dynamic content management
- Client side and server side programming
- Web server performance and evaluation
- Load balancing and redundancy
- Summary

Unit 7

Electronic payment

- Introduction
- Understanding e-payments
- Establishing a payment system
- Credit card transactions
- Digital certificate and certificate authority
- Secure electronic Transaction(SET) standard
- Summary

Unit 8

E-Security

- Introduction
- Internet security
- Types of firewall and policies
- Transaction security
- Encryption
- Secure Socket layer
- World wide web and security
- Spamming and Phishing
- Summary

Unit 9

E-Services

- Introduction
- Understanding E-Service
- Electronic commerce and banking
- Electronic commerce and retailing
- Electronic commerce and publishing
- Electronic commerce and supply chain management
- Specialised services
- Summary

Unit 10

E-Business – An evaluation

- Introduction
- E-Business and Integration with traditional channels
- E-Market place and E-procurement
- Customer loyalty
- Customer retention
- E-Business limitations
- Summary

Unit 11

E-Business Intelligence

- Introduction
- Turning information to knowledge
- Turning knowledge to profits
- Web Analytics
- Customer personalization
- Privacy rights
- Summary

Unit 12

M-Commerce

- Introduction
- The need of M- Commerce
- M-Commerce applications
- Wireless marketing
- Mobile customer relationship management (CRM)
- M-payments
- Summary

Unit 13

The road ahead

- Introduction
- A glance at the history of communication
- The present
- The future
- The year 2020- completing the circle
- Summary

Unit 14

Case studies

- Introduction
- www.amazon.com
- www.rediff.com
- www.hotmail.com
- www.wonderfulboys.com

- www.google.com
- -Summary

SUBJECT: OPERATING SYSTEMS

Unit 1

Introduction to Operating systems

- Introduction
- Computer Hardware
- Concept of operating system
- Functions of operating system
- Security of operating systems
- Types of operating systems
- Design of operating systems
- Summary

Unit 2

Operating system organisation

- Introduction
- Concepts of operating systems
- Functional organisation
- Summary

Unit 3

Process Management – I

- Introduction
- Process
- Process control block
- Process Scheduling
- Scheduling algorithm
- Summary

Unit 4

Memory management

- Introduction
- Memory
- Memory allocation methods
- Address space
- Single contiguous memory management
- Memory allocation strategies
- Summary

Unit 5

Virtual memory

- Introduction
- Paging
- Segmentation
- Virtual memory
- Page replacement
- Summary

Unit 6

Device management

- Introduction
- Device controller
- Device driver
- I/O strategies
- Random access devices
- Summary

Unit 7

File management

- Introduction
- File
- File Allocation systems
- Directories
- Summary

Unit 8

Process management -2

- Introduction
- Interprocess communication
- Process synchronisation
- Concepts of deadlock
- Summary

Unit 9

Protection and Summary

- Introduction
- Protection
- Security
- Data encryption
- Computer Virus
- Summary

Unit 10

Windows

- Introduction
- History
- Features of Windows operating systems
- Summary

Unit 11

Linux

- Introduction
- History
- Structure of Linux
- Features
- Basic commands
- Summary

SUBJECT: SOFTWARE ENGINEERING AND PROJECT MANAGEMENT

Unit 1

Preamble

- Why software engineering

Unit 2

Introduction to Software Engineering

- Introduction
- Systems phenomenon
- Engineering approach
- Software as special type of system
- First visit to Software engineering
- Summary

Unit 3

Overview of Software development life cycle

- Introduction
- Concept of the software development life cycle(SDLC)
- User and developer perspective
- SDLC models
- Feasibility study
- Summary

Unit 4

Systems Analysis

- Introduction
- -Study of existing systems

- Operational paradigm
- Work and data flow
- Streamlining the existing system
- Systems analyst's skill set
- Summary

Unit 5

Requirements capture and analysis

- Introduction
- Collecting requirements
- User involvement
- Documentation and sign off
- Adequacy, Clarity and Common understanding
- Fact finding techniques
- Summary

Unit 6

Diagramming tools

- Introduction
- Function decomposition diagram
- Process model: Data flow diagram
- Data Model: Entity relationship diagram
- Case study
- Summary

Unit 7

Input and Output design

- Introduction
- Input design
- Output design
- Menus and options
- GUI standards
- Summary

Unit 8

Data Layout and Table/File design

- Introduction
- Table and file layout
- Data normalization
- ERD as a guiding beacon
- Data dictionary
- Summary

Unit 9

Process Logic and Programming standards

- Introduction
- Cohesion and coupling
- Systems flow chart
- Program flow chart
- Pseudo code and structured English
- Decision table
- Structured programming
- Summary

Unit 10

Codification scheme

- Introduction
- Role of codes is systems
- Code types
- Code qualities
- Summary

Unit 11

Software project management

- Introduction
- Software cost estimation
- Software schedule and GANTT chart
- Program evaluation review techniques (PERT)
- Critical path methods (CPM)
- Special issues in Software project management
- Summary

Unit 12

Design and code review

- Introduction
- Design review: 4 way test
- Mapping the design
- Ensuring design suitability
- Design harmony
- Design fit
- Review of design components
- Necessity of code review
- What to look for in the code review
- Various forms of code review
- Summary

Unit 13

Software testing

- Introduction

- Testing dichotomy: Black box and white box
- Testing process
- Types of testing
- Reporting and resolving
- Summary

Unit 14

Software Configuration Management (SCM)

- Introduction
- Too many versions of software
- Traceability as central issue in SCM
- Impact Analysis
- Capability to build any pat version
- Software Configuration management (SCM)
- Role of Librarian and automated tools
- Summary

SUBJECT: PROGRAMMING IN C

Unit 1

Introduction to Programming concepts

- Introduction to computers
- Computer characteristics
- Different modes of operations
- Types of programming languages
- Introduction to C
- Structure of a C program
- Summary

Unit 2

Development of a Computer program

- Introduction
- The algorithm
- The flowchart
- Simple examples
- Summary

Unit 3

C fundamentals

- Introduction
- Character set of C
- Constants
- Variables
- Keywords
- Data types
- Declaration
- Expressions
- Statements

- Conversion between different data types
- Summary

Unit 4

Different stages of a Computer program

- Writing a C program
- Compiling and executing a program
- Error diagnostics
- Different types of errors
- Tracing through a program
- Summary

Unit 5

Operators and expressions

- Introduction
- Arithmetic operators
- Unary operators
- Relational and logical operators
- Assignment operators
- Precedence of operators
- Summary

Unit 6

Data Input and Output

- Introduction
- The character input and output
- Entering input (scanf)
- Writing the output(printf)
- Formatted input
- Formatted output
- The ‘gets’ and ‘puts’ functions
- Interactive programming
- Summary

Unit 7

Decision control structures

- Introduction
- Simple if statement
- Logical expressions and relational expressions
- The if statement
- The ?: operator
- The switch statement
- The goto statement
- Summary

Unit 8

The Loop control structures

- Introduction
- The while loop
- The do-while loop
- The for loop
- Nesting
- The break statement
- The continue statement
- Summary

Unit 9

Functions in C

- Introduction
- What is a function?
- Function prototypes
- Definition of a function
- Using functions
- Passing values to functions
- Library functions
- Introduction to Macros
- Macros Vs functions
- Summary

Unit 10

Arrays

- Introduction
- Defining an Array
- Processing an Array
- Multidimensional Array
- 2-Dimensional Array
- Passing arrays to functions
- Summary

Unit 11

Strings

- Introduction
- The concept of strings
- Simple program of string
- Strlen,Strcpy, Strcat and Strcmp functions of string
- Pointers and strings
- Summary

Unit 12

Pointers in C

- Introduction
- Pointer declarations
- Simple programs using pointers
- Passing pointers to functions
- Pointers and 1- Dimensional array
- Pointer arithmetic
- Dynamic memory allocation
- Summary

Unit 13

Structures and Unions

- Introduction
- Defining a structure
- Processing a structure
- User defined data types
- Structures and pointers
- Passing structure to functions
- Unions
- Summary

Unit 14

Data files in C

- Introduction
- Opening and closing data files
- Processing data files
- Summary

Unit 15

More about C

- Introduction
- Command line arguments
- Enumerated data types
- List of library functions

SUBJECT: DATABASE MANAGEMENT SYSTEM

Unit 1:

Basic Concepts

- Introduction
- Database system application
- Database Systems versus file systems
- Views of data
- Data Models
- Database languages
- Database users and administrators

- Transaction management
- Summary

Unit 2:

Data Models

- Introduction
- Basic concepts
- Constraints
- Keys
- Entity relationship diagram
- Reduction of an E-R model into tables
- Summary

Unit 3:

Relational models

- Introduction
- Relational algebra
- Extended relational algebra operations
- Modification of database
- Summary

Unit 4:

Relational algebra

- Introduction
- Relational algebra
- Selection and projection
- Set operations
- Joins
- Summary

Unit 5:

MS- Access

- Introduction
- Environment
- Creating tables
- Queries
- Form and report wizards
- Introduction to Oracle (SQL*plus)
- Summary

Unit 6:

Structured Query Language (SQL)

- Introduction
- Basic structure
- Rename, string operations
- Ordering the display
- Set operations

- Aggregate functions
- Sub queries
- Summary

Unit 7:

Advanced Structured Query Language (SQL)

- Introduction
- Views
- Joined relations
- Data definition Language statements
- Summary

Unit 8:

Integrity and Security

- Introduction
- Domain constraints
- Referential integrity
- Triggers
- Authorization in SQL
- Summary

Unit 9:

Normalization

- Introduction
- History
- First Normal form
- Second Normal form
- Third Normal Form
- BCNF
- Fourth Normal form
- Summary

Unit 10:

Transaction management

- Introduction
- Basic concepts
- Transaction state
- ACID properties
- Recovery and Atomicity
- Summary

Unit 11:

Concurrent executions

- Introduction
- Problems in Concurrent executions

- Advantages in Concurrent executions
- Serializability
- Summary

SUBJECT: MANAGEMENT INFORMATION SYSTEM

Unit 1:

Introduction

- MIS, Concepts and Roles
- Characteristic of MIS
- Functional subsystems, Activities Subsystems
- Prerequisites of MIS
- Contemporary approaches to MIS
- Technical approaches, Behavioural approach, Socio- technical approach,
- Information as Strategic resource
- Use of Information as complete advantage

Unit 2:

IT and IT Enabled Service

- Evolution of Computers
- Computer Hardware
- Generation of Computers
- Complete categories
- Software –System Software, application Software
- Data communication – Data processing, Transaction processing
- Data processing modes
- Data transmission:
    - Functions Of telecom
    - Communication – Transmission channel
    - Characteristic of Communication channels
- Network – Topologies, Types of Network, OSI, TCP/IP
- Internet – Internal, External, ISDN
- Multimedia
- IT Enabled Services – BPO, Call centres, MT, GIS

Unit 3:

Information, Management and Decision-making

- Management
- Decision Making – Decision types, Decision making process, Decision making tools, Principle of rationality, Principle of Logic and Interaction
- Decision making Models – Classical Models, Administrative Model, Herbert, Simon Model
- Information- Sources of Information, Types of Information, Information requirements, Techniques for assessing information requirements

Unit 4:

Systems Analysis and Design

- System- Types, Characteristic
- Control – Control process, Requirements of Good control system, Control system

- Law of requisite variety

Unit 5:

Systems Development

- Systems Analysis, System Design, System Implementation, System Development process
- System development Life cycle
- Rapid system development tools- Prototyping, CASE tools, Object oriented systems

Unit 6:

Decision Support system

- The Decision support system – Components, Characteristics, Structure
- Group decision support system
- Executive Information system/ Executive support system
- Expert system
- Artificial Intelligence

Unit 7:

Database management system

- DBMS Components
- Database Model

Unit 8:

Datawarehousing and Data Mining

- Datawarehusing definition, Structure /Architecture
- Data Mining

Unit 9:

Information Security and Control

- Information System Security threats
- External and Internal Threats

Unit 10:

Information System and Quality

- Quality Assurance
- Software Quality Assurance
- Management role in Software Quality Assurance
- Quality Assurance methods – Quality profile model, Construction Quality model, Tick IT, Initiative

Unit 11:

Functional applications of MIS

- Stores and Purchase management
- Accounts payable system
- Inventory management
- Production management system

- Marketing Service system

Unit 12:

Applications in Service Sector

- MIS application in Service Industry
- Airlines, Hospital, Banking

SUBJECT: JAVA PROGRAMMING

Unit 1**:**

Introduction to Java

- Introduction
- Programming Paradigms
- Java features
- Installing Java
- Java programs
- Summary

Unit 2:

Java Language fundamentals

- Introduction
- Data Types
- Java Variable Name Constraints
- Java primitive
- Java Keywords
- Access Modifiers
- Type Casting
- Arrays
- Code Comments
- Summary

Unit 3:

Operators and Operands

- Introduction
- Operands and Operators
- Arithmetic operators
- Relational and Conditional operators
- Shift and Bitwise operators
- Assignment operators
- Other operators
- Evaluation order
- Summary

Unit 4:

Loops, Constructs and Assertions

- Introduction
- Switch Case
- If-Else
- For
- While
- Do while
- Assertions
- Summary

Unit 5:

Classes and Objects: Part I

- Introduction
- Classes
- Constructors
- Method
- Packages
- Summary

Unit 6:

Classes and Objects: Part II

- Introduction
- Static and Non-Static Members
- Method Overloading
- Constructor Overloading
- Inheritance
- Summary

Unit 7:

Classes and Objects: Part III

- Introduction
- Method overriding
- Abstract classes and Methods
- The Final Keyword
- Interfaces
- Polymorphism
- Summary

Unit 8:

Classes and Objects: Part IV

- Introduction
- Nested Classes
- Enumerations
- Summary

Unit 9:

String and Stringbuilders

- Introduction
- String
- StringBuilder
- Summary

Unit 10:

Exceptions

- Introduction
- Why define exceptions?
- Types of exceptions
- The exception mechanism
- Throws
- Try
- Catch
- Finally
- Throw
- Summary

Unit 11:

Threads, Input and Output

- Introduction
- Processes and Threads
- Thread Objects
- Thread group
- Synchronization
- Multi threaded programs
- Input-Output
- Summary

Unit 12:

Java GUI with Swing

- Introduction
- Top Level Containers
- General Purpose Containers
- Layout Management
- Components
- Event Handling
- Applets
- Summary

SUBJECT: WEB TECHNOLOGIES

Unit 1:

Introduction to Web Technologies

- Introduction
- Aims of this course
- Basic concepts of Web Technologies
- Differentiate between Website " Design" and "Construction"
- Summary

Unit2:

More about Web technology

- Introduction
- What is HTTP
- More about FTP
- TCP-IP settings
- Summary

Unit 3:

Starting of HTML

- Introduction
- Documents Tags
- Tables and Table Construction
- Summary

Unit 4:

Creating tables and stylesheets

- Introduction
- More about tables
- Introduction to Cascading style sheets
- Summary

Unit 5:

Creating a Frame

- Introduction
- Creating Frames
- Advanced Frames
- Summary

Unit 6:

Different types of Links

- Introduction
- What are links
- First Links
- Basic Image Linking
- Image Rollover

- Image Maps
- Summary

Unit 7:

Common Languages of the web

- Introduction
- DHTML
- Javascript
- ASP
- PHP
- Summary

Unit 8:

Some more Technicalities

- Introduction
- Creating forms
- CGI explained
- The use of a database
- Internet security
- Summary

Unit 9:

Creating websites and Web design

- Introduction
- What is a website
- File structure, Uploading and servers
- A preview of useful websites
- Mistakes made in web design
- Summary

Unit 10:

A Closer look at Web design

- Introduction
- Getting started
- A look at some websites
- Site navigation and architecture
- Importance of Design
- Summary

Unit 11:

Design tools

- Introduction
- Basics of photoshop
- Getting to know the tools
- Combination images and quick mask
- Units and resolution
- Summary

Unit 12:

Planning your webpage

- Introduction
- Design of practice
- Planning your first webpage design
- Page layout and flow
- Important tips
- Summary

Unit 13:

Construction tools

- Introduction
- First steps into Dreamweaver
- Getting to know the tools
- Understanding tables
- Web fonts
- Summary

Unit 14:

Your web design

- Introduction
- Finalizing the design
- Dividing your page
- Web Image formats
- Optimizing and File Management
- Summary

Unit 15:

Building Web pages

- Introduction
- Creating pages
- Linking pages
- Image maps and rollover images
- Summary

Unit 16:

Introduction to Web Multimedia

- Introduction
- Web multimedia
- Advertising and flash intros
- Games and movies
- E-learning
- Summary

SUBJECT: MARKETING MANAGEMENT

Unit 1:

What is Marketing?

- Origins of Marketing
- The Nature of Marketing
- Some definitions of Marketing
- The Marketing concepts

Unit2:

The Marketing Environment

- The Economic environment
- The Competitive environment
- The Technological environment
- The Socio-cultural environment
- Environmental monitoring

Unit 3:

Marketing Management

- The Management process
- Strategic planning and the Marketing process

Unit 4:

Marketing as Decision making and Information gathering

- Marketers as Problem solvers and Decision makers
- The Marketing Information system(MIS)
- Marketing research

Unit 5:

Analyzing consumer behaviour

- Major facts influencing consumer behaviour
- Cultural factors
- Social factors
- Personal factors
- Psychological factors
- The buying decision process
- Purchase decision

Unit 6:

Organizational buying behaviour

- The Industrial market
- How do industrial buyers make their buying decisions?
- The reseller market
- The Government market

Unit 7:

Market segmentation

- Markets
- People
- Strategies for identifying target markets
- The mass market strategy
- Market segmentation
- The concentration strategy

Unit 8:

Targeted marketing

- What is targeted marketing
- Developing a segmentation strategy
- Evaluate market segments

Unit 9:

The Marketing mix

- Developing Growth strategies
- The Marketing process
- Developing the Marketing mix

Unit 10:

The product

- What is a product
- Convenience products
- Shopping products
- Special products
- Unsought products
- Services
- The product Life cycle
- The adoption and Diffusion process
- Product mix and product line

Unit 11:

New product development and Life cycle strategies

- New product development strategy
- Idea generation
- Test marketing
- Commercialisation

Unit 12:

Marketing channels

- Marketing channels and their importance
- Channel structure
- Channel integration and expansion

- Influences on channel development
- Channel management
- Channel planning

Unit 13:

Physical distribution

- What is physical distribution
- The physical distribution system
- The EOQ- Economic order quantity
- Modes of transportation

Unit 14:

The promotion effort

- The communication process
- The promotion mix
- Managing the promotion effort
- Advertising
- Personal selling
- Sales promotion
- Public relations

Unit 15:

Price determination

- Buyers and Price
- Non-price competition
- Systems view of pricing
- Procedure for setting list price

Unit 16:

Price administration

- Discounts and Allowances
- Geographic point pricing
- Psychological pricing
- Negotiated contracts

SUBJECT: MANAGERIAL ECONOMICS

Unit 1:

Introduction to managerial Economics

- Introduction
- Definition of managerial economics
- Nature of Managerial economics
- Scope of Managerial economics
- Significance of Managerial economics
- Economic problem

Unit 2:

Types of Business organizations

- Definitions of a firm as a producing unit
- The Firm and the Industry
- The Firm and the plant
- Types of Business organisation
- Specific organisational goals/Motivation/Objectives of the firms
- Other goals or Objectives

Unit 3:

Profit

- Meaning of profit
- Theories of profit
- Measurement of profit
- Profit policy

Unit 4:

Demand Analysis

- Concept of demand
- Determinants of demand
- Demand schedule
- The law of demand
- Changes in Demand
- Elasticity of demand(Price elasticity, Income elasticity and Cross elasticity)
- Demand forecasting
- Introduction to Index numbers

Unit 5:

Production of Costs

- Production function
- The law of diminishing returns
- Law of variable proportion
- Law of returns to scale
- Economics and Diseconomics of sale
- Supply Analysis
- The Law of Supply
- Cost concepts
- Determinants of cost
- Breakeven point

Unit 6:

Pricing output determination in different markets

- What is a Market
- Pure and Perfect competition
- Determination of Price and output
- Equilibrium of firm and Industry under perfect competition

- Determination of Price and Output under Monopoly
- Price discrimination under Monopoly
- Monopolistic competition
- Determination of Price and Output under Monopolistic competition
- Oligopoly and Duopoly
- Pricing methods or Pricing practice

Unit 7:

Cost-Benefit Analysis

- Public goods and Private goods
- Steps in Cost benefits Analysis
- Cost benefit analysis and Overall resource allocation
- Overall resource allocation (Market mechanism)

Unit 8:

Macro Economic Analysis

- Macro economic
- Importance of Macro economics
- The Keynesian of Macro economics theory
- The principle of effective demand
- Introduction to Consumption function and Investment function
- Business fluctuations
- Inflation
- Macro policies

Unit 9:

Government and Private business

- Introduction
- Need of Government intervention
- Price controls in India
- Protection of Consumer interest
- The New Industrial policies
- Economic liberalisation
- The process of disinvestment: Need and Methods

SUBJECT: PRINCIPLES AND PRACTICES OF MANAGEMENT

Unit 1:

- Introduction – Basic functions, Importance of General management
- Definitions of Management
- Nature of Management
- Management- Art, Science and Profession

Unit 2:

History of Management thought

- Contributions and their ideas on management

Unit 3:

Forecasting, planning and decision making

- Forecasting
- Planning – Component of planning essentials of good plan
- Vision and Mission
- Management by Objectives
- Decision making

Unit 4:

Organizing

- Definition
- Process
- Delegations of Authority
- Decentralisation
- Span of management

Unit 5:

Directing

- Definition
- Features
- Importance
- Principles

Unit 6:

Controlling

- Definition
- Process
- Types of control
- Control techniques

Unit 7:

Co-ordination

- Need
- Types
- Techniques
- Difficulties

Unit 8:

Leadership

- Definition
- Styles
- Traits

Unit 9:

Motivation and Morale

- Introduction and definition
- Theories of motivation
- Definition of Morale
- Factors affecting morale
- Ways to improve morale

Unit 10:

Communication

- Introduction
- Definitions
- Process
- Barriers
- Principles

Unit 11:

Services sector

- Features of services
- Reasons
- Challenges in the service sector

Unit 12:

Retailing sector

- Introduction
- Obstacles
- Facts
- Challenges

Unit 13:

Event Management

- Introduction
- Event management in India
- Areas of operation
- Opportunities
- Features and problems

Unit 14:

Insurance sector

- Introduction
- Functions of Insurance sector
- Challenges

Unit 15:

Corporate Governance:

- Introduction
- Aspects

Unit 16:

Business ethics

- Principles
- Concepts

Unit 17:

Strategic Business Unit

- Introduction
- Concept
- Advantages
- Disadvantages

Unit 18:

Learning organisation

- Introduction
- Characteristics
- Key management process
- Tools and Techniques
- Inhibitors

Unit 19:

From IQ to EQ

- Definition
- Components of EQ

Unit 20:

Indian Management thought

- Thought of Kautilya
- Sukrayacharya
- King Akbar
- Samartha Ramdas
- Swami Vivekananda
- Vedanta
- Vipssana

Unit 21:

Indian Business families and their strategic response to liberalisation

- Indian Business families
- Strategies adopted by Business families

Unit 22:

Management consultants

- Definition

- Need
- Role
- Rules for becoming successful consultants

SUBJECT: BUSINESS COMMUNICATION AND EXECUTIVE EFFECTIVENESS

Unit 1:

Meaning and importance of Communication

- Importance of effective communication in the modern business
- Communication process
- Nature, scope and importance of business communication
- Barriers of effective communication

Unit 2:

Communication Networks

- Types of Formal communication- Downward, Upward, Horizontal
- Types of Informal communication – Grapevines chains
- Types of communication- Face-to-Face, teleconferencing, Computer Conferencing, telephone and Voice Mail, Written communication
- Principles of Good Listening

Unit 3:

Importance of Body Language

- Effective use of Body Language
- Advantages and Limitations

Unit 4:

Written communication

- Advantages of written communication
- Business Letters – Layout
- Memos- Direct and Indirect
- Reports – Types, Importance, Special report forms
- Proposals- Definition, Contents
- House Journals
- Print material
- Telecommunication
- E-Communication – Online marketing
- Electronic Market – B2C,B2B,C2C,C2B
- Role on Internet in Promotion

Unit 5:

Meeting management

- Techniques of conducting meetings
- Techniques for participating in a meeting
- Writing for meetings – Agenda, Minutes of meeting

Unit 6:

What makes a great manager?

- Three faces of manager – Planner, Provider, Protector
- Vision
- Prescience
- Leadership

Unit 7:

The successful person processes- Vision

- Value of Vision
- Obstructions to Vision
- Realizing vision

Unit 8:

The successful person uses- Time management

- Thieves that steal time
- How to determine priorities
- How to maintain priorities
- How to act on priorities

Unit 9:

The successful person finds way to – Handle stress

- Positive stress
- When stress become strain
- Preventing stress from becoming distress

Unit 10:

The successful person values – Relationships

- How to build good relationships
- Avoiding arguments

Unit 11:

Presentation skills

- Presentation – Method of presentation: Using Visual aids
- Guidelines for use of Visual aids
- Negotiations – Characteristics
- Factors important for successful negotiation
- Structure of Negotiation process
- Functional/ Linguistic content of negotiation
- Guidelines for successful negotiation

Unit 12:

Work assignment

- Personal strengths audit

- Personal strengths descriptions
- Positive qualities

SUBJECT: MANAGEMENT ACCOUNTING

Unit 1

Introduction

- Streams of accounting – Financial, Cost and management
- Definition, Objects and scope of management
- Disadvantages/Limitations of Management accounting
- Comparison with financial and cost accounting

Unit 2:

Basics of Financial accounting

- Principles, Convention and concepts of accounting
- Systems of accounting
- Types of expenditure
- Glossary of terms used in Financial accounting
- Double entry system of accounting
- Depreciation accounting

Unit 3:

Process of accounting

- Journalising, Posting, Control Ledgers, Balancing of Accounts, Preparation of Final Accounts
- Illustration with solutions
- Problems to solve

Unit 4:

Bank reconciliation statement

- Preparation of Bank reconciliation statement
- Illustration with solution
- Problems to solve

Unit 5:

Rectification of errors

- Types of errors
- Effect of errors on Trail balance
- Illustration with solutions

Unit 6:

Cost Accountancy

- Introduction
- Concepts of cost centre

- Special types of cost
- Illustration of costing system

Unit 7:

Elements of cost

- Cost sheet /cost statement
- Illustrative problems with solution

Unit 8:

Material cost

- Direct/Indirect cost
- Procurement /Issue of Material, P.O., GRN, MRN, Min card
- Methods of valuation of stores, receipts/issues
- Techniques of Inventory control
- Illustrations with solutions
- ABC Analysis, Bill of Material, Perpetual inventory system

Unit 9:

Labour cost

- Time keeping methods
- Time booking, Time sheet, Job card
- Methods of remuneration, Time rate, Piece rate, various bonus/Incentives systems
- Important terms in case of Labour cost
- Illustrations with solution

Unit 10:

Overhead cost

- Elementwise and Functionwise classifications
- Procedure for charging the overheads- Distribution methods
- Absorption of overheads
- Machine hour rate
- Under/Over absorption
- Illustrations with solution

Unit 11:

Marginal costing

- The concept, Assumption and features
- Form of Operating statement
- Basic concepts of Marginal costing, Contribution, Profit Volume ratio, Break even point, Margin of safety
- Illustrations with solution
- Cost, Volume, Profit relationship
- Product profitability
- Limitations of Marginal costing
- Illustrations with solution

Unit 12:

Budgetary control

- Budgets and budgetary control, Advantages, pre-requisites
- Types of budgets
- Fixed and Flexible budget
- Illustrations with solution

Unit 13:

Standard costing

- Concept of standard cost and standard costing
- Advantages, Limitations
- Standard costing compared to Budgetary control
- Preliminaries for establishing standard costing system
- Basic standards
- Reporting and Analysis of variance
- Illustrations with solution

Unit 14:

Uniform costing

- Scope
- Requisites, Advantage, Disadvantage
-

SUBJECT: DATA MINING AND WAREHOUSING

Unit 1

Introduction to Data Mining

- What is data mining?
- Data mining, on what kind of data
- Data Mining Patterns
- Data mining functionalities
- Classification of Data Mining Systems

Data Warehouse Architecture

- Steps for the design and construction of data warehouse
- A three-tier data warehouse architecture
- OLAP server architectures: ROLAP vs. MOLAP vs. HOLAP

Unit 2

Data Warehouse Implementation

- Efficient computation of data cubes
- Indexing OLAP data
- Efficient processing of OLAP queries
- Data warehouse back-end tools and utilities

Unit 3

From Data Warehousing to Data Mining
- Data warehouse usage
- From on-line analytical processing to on-line analytical mining

Unit 4

Data Preprocessing
- Data Cleaning – Missing values, Noisy data, Inconsistent data
- Integration- Data integration, Data transformation
- Reduction- Data cube aggregation, Dimensionality reduction, Data compression, Numerosity reduction
- Data Hierarchy - Concept hierarchy generation for categorical data

Unit 5
Application of Data Mining
- Data mining tools for Domain specific languages
- Visual and audio datamining
- Scientific datamining

Case Studies

Unit 6
Classification & Prediction
- Classification by decision tree induction
- Bayesian classification
- Classification by backpropagation
- Linear and multiple regression prediction
- Nonlinear regression prediction

Metadata
- Metadata repository

Details of assignments and examination:

a. Online Questions: - 60% weightage

This component will be same as all other subjects, that is, you will be required to submit online

Assignments and appear for online examination.

b. Project Work: - 40% weightage

Assignments (Project Work):- You will be provided 16 Assignment Questions of 100 marks.

You need to solve any 10 programs. Each program carries 10 marks. You are required to send the following to SCDL, along with the question paper:-

1. Print out the code

2. Print of the output

Examination (Project Work):- The project for the examination would be sent to the students later. However, we are sending some sample projects for practice. The exam project will be on similar lines. Please note that the project will be evaluated on the following criteria:-

1. Program Logic
2. Code Documentation
3. Correctness / Completion

For more details contact:

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