

# VEER NARMAD SOUTH GUJARAT UNIVERSITY

B.C.A.

Semester – V

## Teaching and Evaluation Scheme

Semester V <sup>th</sup>							
Paper No	Subject	Teaching Time	External Exam		Internal Exam.		Total Marks
		Lect./Prac.	Duration	Marks	Duration	Marks	
501	Java Programming Language	4.5 Hrs./Week	3 Hrs	70	2 Hrs	30	100
502	Unix & Shell Programming	4.5 Hrs./Week	3 Hrs	70	2 Hrs	30	100
503	E-Commerce	4.5 Hrs./Week	3 Hrs	70	2 Hrs	30	100
504	Operating Systems II	4.5 Hrs./Week	3 Hrs	70	2 Hrs	30	100
505	Information System	4.5 Hrs./Week	3 Hrs	70	2 Hrs	30	100
506	Practical (Based on Paper 501, 502)	9Hrs./Week	5 Hrs	150	3 Hrs	50	200
	TOTAL	31.5 Hrs./Week		500		200	700

# **VEER NARMAD SOUTH GUJARAT UNIVERSITY**

**B.C.A.**

**Semester – V  
2005**

**Paper – 501**

**Subject : Java Programming Language**

1. Introduction to Java
  - 1.1 Properties of Java
  - 1.2 Comparison of Java with C++
  
2. Java Developer's Kit (JDK) and its uses
  - 2.1 Java Compiler
  - 2.2 Java Interpreter
  - 2.3 Java Debugger
  - 2.4 Applet Viewer
  
3. Basic Concepts
  - 3.1 Identifier
  - 3.2 Literals
  - 3.3 Operators
  - 3.4 Variables
  - 3.5 Keywords
  - 3.6 Data types
  
4. Control Structures
  - 4.1 Branching
    - 4.1.1 If – else
    - 4.1.2 Break
    - 4.1.3 Switch
    - 4.1.4 return
  - 4.2 Looping
    - 4.2.1 While
    - 4.2.2 Do-while
    - 4.2.3 For
    - 4.2.4 Continue
  
5. Classes and objects
  - 5.1 Simple class
  - 5.2 Fields
  - 5.3 Access controls

- 5.4 Object creation
- 5.5 Construction and initialization
- 5.6 Methods
- 5.7 This
- 5.8 Overloading methods
- 5.9 The main method
  
- 6. Interfaces
  - 6.1 Introduction to Interfaces
  - 6.2 Interface Declaration
  - 6.3 Inheriting and Hiding Constants
  - 6.4 Inheriting, Overloading and Overriding Methods
  - 6.5 Interfaces Implementations
  
- 7. Exceptions
  - 7.1 Introduction to Exceptions
  - 7.2 Creating Exception Types
  - 7.3 Throw
  - 7.4 Throws
  - 7.5 Try, catch and finally
  
- 8. Threads
  - 8.1 Introduction to Threads
  - 8.2 Thread Model
  - 8.3 Priority of Threads
  - 8.4 Inter Thread Communication
  - 8.5 Synchronization
  
- 9. Strings
  - 9.1 Basic String Operations
  - 9.2 String Comparison
  - 9.3 String Buffer Class
  
- 10. Packages
  - 10.1 Package Naming
  - 10.2 Type Imports
  - 10.3 Package access
  - 10.4 Package Contents
  - 10.5 Package Object and Specification
  
- 11. The Applet Classs
  - 11.1 Applet Basics
  - 11.2 Applet Architecture
  - 11.3 Applet Skeleton

- 11.4 Applet Display Methods
- 11.5 HTML APPLET Tag (<APPLET>)
- 11.6 Passing Parameters to Applets

**Reference Books :**

1. Ken Arnold James Gosling, David Holmes – Java Programming Language Third Edition – Addition Wesley (Pearson Education)
2. Patrick Naughton – Java \_ The Complete Reference – Tata McGraw Hill
3. Samuel A. Rebelsky – Experiments in Java : An Introductory Lab Manuals – Addition Wesley (Pearson Education)
4. Steven Haines – Java 2 From Scratch PHI.

# **VEER NARMAD SOUTH GUJARAT UNIVERSITY**

**B.C.A.**

**Semester – V**

**Paper – 502**

**Subject : UNIX & Shell Programming**

Prerequisite - Fundamental Concepts of Operating Systems.

## 1. Introduction

- 1.1 Features
- 1.2 System structure
- 1.3 Shell & its features
- 1.4 Kernal
  - 1.4.1 Architecture of the UNIX OS
  - 1.4.2 Kernal Data Structure

## 2. Overview

- 2.1 Logging in & out
- 2.2 I node and file structure
- 2.3 File system structure and features
- 2.4 Booting sequence & init process
- 2.5 File access permissions

## 3. Shell Programming

- 3.1 Environmental & user defined variables
- 3.2 Argument processing
- 3.3 Shell's interpretation at prompt
- 3.4 Arithmetic expression evaluation
- 3.5 Control structure
- 3.6 Redirection
- 3.7 Background process & priorities of process
- 3.8 Conditional execution
- 3.9 Parameter & quote substitution
- 3.10 Text editor

## 4. Advanced shell programming

- 4.1 Filtering units.
- 4.2 Awk.
- 4.3 Batch process.
- 4.4 Splitting, comparing, sorting. Merging & ordering files.
- 4.5 Communications with other users.

- 4.6 Spooling & Print Management.
- 4.7 Backup & Recovery.
  
- 5. Editors and utility
  - 5.1 Link editor (ed)
  - 5.2 Screen editor tutorial (vi)
  - 5.3 Fsock utility
  
- 6. Memory management
  - 6.1 Swapping
  - 6.2 Demand paging
  - 6.3 Memory management

**Reference Book :-**

1. M.J.Buch : The design of the UNIX OS – Prentice Hall.
2. A.S.Godbole : Operating Systems – Tata McGraw Hill.
3. Vijay Mukhi : Working with UNIX PBP Publications.
4. Vijay Mukhi : UNIX Shells – BPB Publications.
5. Das : UNIX System Concepts & Applications – Tata McGraw Hill.

# VEER NARMAD SOUTH GUJARAT UNIVERSITY

**B.C.A.**

**Semester – V**

**Paper – 503**

**SUBJECT : E –Commerce**

1. Introduction to E – Commerce
  - 1.2 What is E - Commerce
  - 1.3 E – Commerce Framework
  - 1.4 Anatomy of E – Commerce Applications
    - 1.4.1 Multimedia contents of E – Commerce Applications
    - 1.4.2 Client / Server Architecture in E – commerce
    - 1.4.3 Internal Processes of Multimedia Servers
    - 1.4.4 Video Servers and E- Commerce
  - 1.5 Information Delivery/ Transport
    - 1.5.1 Transport routes
    - 1.5.2 Access Devices
  - 1.6 E- Commerce Consumer Applications.
  - 1.7 E – Commerce Organization Application.
2. Network for E – Commerce
  - 2.1 Components of Information way
  - 2.2 Network access Equipment
  - 2.3 Global Information Distribution Network
    - 2.3.1 Long Distance Networks
    - 2.3.2 Satellite Networks
3. E – Commerce and World wide Web
  - 3.1 Architectural Framework for E-Commerce
    - 3.1.1 E-commerce application services
    - 3.1.2 Consumer to Business Transaction
    - 3.1.3 Business to Business Transaction
  - 3.2 WWW as architecture
    - 3.2.1 Block diagram of E-commerce.
    - 3.2.2 Hypertext publishing.
    - 3.2.3 Technology behind the web.
  - 3.3 Security on the web
    - 3.3.1 Categories of internet data and transactions.
    - 3.3.2 WWW based security schemes.
    - 3.3.3 Secure Socket layer.

4. Electronic payment system
  - 4.1 Types of electronic payment systems
  - 4.2 Digital token based electronic payment system
    - 4.2.1 E Cash
    - 4.2.2 Electronic checks
  - 4.3 Smart cards and electronic payment system
  - 4.4 Credit card based electronic payment system

**Reference Books :-**

1. Kalakota and Whinston – Frontiers of of Electronic Commerce – Addison Wesley
2. Efraim Turban, Jae Lee, David King, H.Michel Chung – Electronic Commerce : A Managerial Perspective – Addison Wesley
3. Parag Diwan & Sunil Sharma – IT Encyclopedia.com Volume 8 : E-Commerce – Pentagon Press
4. Charles Trepper – E-Commerce Strategies – PHI.

# **VEER NARMAD SOUTH GUJARAT UNIVERSITY**

**B.C.A.**

**Semester – V**

**Paper – 504**

**Subject : Operating Systems – II**

1. Memory Management
  - 1.1 Memory Management Functions
  - 1.2 Contiguous Allocation
    - 1.2.1 Partitioned memory static and dynamic allocation
    - 1.2.2 Segmentation
  - 1.3 Non-contiguous allocation
    - 1.3.1 Paging segmentation
    - 1.3.2 Demand paging and segmentation
    - 1.3.3 Allocation and replacement policies
  
2. Process Management
  - 2.1 Process management
  - 2.2 Process concept
  - 2.3 Scheduling
  - 2.4 Scheduling Algorithms
  - 2.5 Process co-ordination
    - 2.5.1 Producer / Consumer Problem
    - 2.5.2 Critical Section Problem
    - 2.5.3 Semaphores
    - 2.5.4 Inter process Communication
    - 2.5.5 Deadlocks
  
3. Device Management
  - 3.1 Device management function
  - 3.2 Device characteristics
  - 3.3 Disk space management
  - 3.4 Allocation and Disk scheduling methods
  
4. File management
  - 4.1 File management functions.
  - 4.2 File system and Directory structure organization.
  - 4.3 File protection.

### **Reference Books :-**

1. Silberschatz : An OS Concept – Addison Wesley Publication
2. W.Stallings – An Operating Systems – PHI
3. I.M. Flinn. A.M. Mchoes – Understanding Operating Systems – Thomson Learning
4. Donovan M. Operating systems – McGraw Hill Pub.
5. Crowley : Operating Systems : A design Oriented Approach – Tata Mcgraw Hill
6. S. Godbole – Operating Systems TMH.

# VEER NARMAD SOUTH GUJARAT UNIVERSITY

**B.C.A.**

**Semester – V**

**Paper – 505**

**SUBJECT : Information System**

1. Concept of Information Systems
  - 1.1 Data and information
  - 1.2 Information need and benefits
  - 1.3 Input, processing. Output and feedback
  - 1.4 Manual and computerized information system.
  
2. Concepts of systems
  - 2.1 Definition of system in an organization
  - 2.2 Business as a system
  - 2.3 Types of systems
    - 2.3.1 Deterministic probabilistic systems
    - 2.3.2 Open and close systems
  - 2.4 Overview of business functions in an organization
  
3. Introduction to various information systems
  - 3.1 Business information systems
    - 3.1.1 Transaction processing systems
    - 3.1.2 Work flow systems
    - 3.1.3 ERP
  - 3.2 Management information systems
  - 3.3 Decision support systems
  - 3.4 Why information systems are required ?
  
4. Transaction processing systems
  - 4.1 Overview of transaction processing system
  - 4.2 Transaction processing methods and objectives
  - 4.3 Transaction processing activities
    - 4.3.1 Data collection
    - 4.3.2 Data editing
    - 4.3.3 Data correction
    - 4.3.4 Data manipulation
    - 4.3.5 Data storage
    - 4.3.6 Document production and reports
  - 4.4 Traditional transaction processing applications
    - 4.4.1 Order processing systems

- 4.4.2 Purchase systems
- 4.4.3 Accounting systems

- 5. Case study
  - 5.1 Information system for academic institution.
  - 5.2 Information system for departmental store.

**Reference Books :-**

1. Ralf M. Stair & George W. Reynolds – Principles of information system Thomson Learning publisher.
2. NCC – Introduction to system analysis and Design – Galgotia Publications
3. CVS Murthy – Management information systems – Text & Applications – Himalaya Publication house.
4. K.C.Laudan & J.P.Laudan – Management information systems – organization and technology – fourth edition – Prentice Hall India.
5. W.S.Jawadekar – Management information system – Tat McGraw Hill.
6. J.Buffam – E-Business and IS Solutions – Addition Wesley.
7. Efraim Turban & Jay E.Aronson – Decision Support System and Intelligence Systems – Addition Wesley.

# **VEER NARMAD SOUTH GUJARAT UNIVERSITY**

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**Semester – V**

**Paper – 506**

**SUBJECT : PRACTICAL**

Practicals shall be conducted as mentioned in the teaching scheme for paper :  
501, 502. Separate journals for paper no 501 and 502 should be prepared.