

**BHAVNAGAR UNIVERSITY**  
**B.E. – INFORMATION TECHNOLOGY**  
**DETAIL SCHEME OF SEM- V**

**Inforce-2007**

<b>SUBJECT CODE</b>	<b>SUBJECT</b>	<b>TH HOURS</b>	<b>PR HOURS</b>	<b>TH MARKS</b>	<b>TW</b>	<b>PR</b>	<b>TOTAL</b>
501	OPERATING SYSTEMS	04	02	100	25	25	150
502	INTERNET PROGRAMMING-II	04	02	100	25	25	150
503	MANAGEMENT INFORMATION SYSTEM	03	02	100	25	25	150
504	FRONT END TOOLS	03	02	100	25	25	150
505	RELATIONAL DATABASE MANAGEMENT SYSTEMS	04	02	100	25	25	150
506	INTRODUCTION TO ADVANCED WEB PROGRAMING	00	02	00	25	25	50
		<b>18</b>	<b>12</b>				<b>800</b>

**BHAVNAGAR UNIVERSITY**  
**B. E. SEM -V (IT)**  
**IT-501: OPERATING SYSTEM**

Inforce-2007

TEACHING SCHEME			EXAMINATION SCHEME				TOTAL MARKS
THEORY HOURS	TUT. HOURS	PRACT. HOURS	THEORY		PRA/ORAL MARKS	T/W MARKS	
			MARKS	HOUR			
4	-	2	100	3	25	25	150

**1.0 INTRODUCTION**

1.1 What is Operating system?

1.2 Types of operating systems.

1.2.1 Batch Operating system

1.2.2 Multiprogramming Operating System

1.2.3 Network Operating System

1.2.4 Multitasking Operating system

1.2.5 Multithreading Operating SYSTEM

1.2.6 Distributed Operating System

1.3 OPERATING SYSTEM STRUCTURE

1.3.1 Layer Structure Approach

1.3.2 Kernal Approach

1.3.3 Virtual Machine

1.3.4 Client-Server Model

1.4 Operating System Services

1.4.1 Types of Services

1.4.2 The User View and Operating System View

**2.0 FILE MANAGEMENT**

2.1 File Concepts

2.2 File Support

2.3 Access Methods

2.4 Allocation Methods

2.5 Directory Systems

2.6 File Protection

**3.0 PROCESS MANAGEMENT**

3.1 Processes Concept

3.2 Processor Scheduling

3.2.1 Types of Schedulers

3.2.2 Scheduler and performance Criteria

3.3 Inter-Process Communication and Synchronization

3.3.1 Basic concepts of Inter-process Communication and Synchronization.

3.3.2 Semaphore and Mutual Exclusion

3.4 Deadlocks

**4.0 MEMORY MANAGEMENT**

4.1 Single Process Monitor

4.2 Multiprogramming with Fixed partitions

4.3 Multiprogramming with Dynamic Partitions

4.4 Paging

4.5 Segmentation

4.6 Virtual Memory

**5.0 DISK AND DRUM SCHEDULING**

5.1 First Come First Served Scheduling

5.2 Shortest Seek Time First

5.3 SCAN

5.4 Selecting Disk Scheduling Algorithms

5.5 Sector Queuing

**6.0 INTRODUCTION OF UNIX OPERATING SYSTEM AND SHELL PROGRAMMING**

**PRACTICAL:**

- 1- Shell Programming in UNIX

**REFERENCES:**

- 1- Advanced UNIX and programmer - Stephen Prate BPB
- 2- Operating system Concepts - James Peterson Wesley Abraham Silberschatz
- 3- Operating System- Milenkovic MGH

**BHAVNAGAR UNIVERSITY  
B. E. SEM -IV (IT)  
IT-502 : INTERNET PROGRAMMING-II**

TEACHING SCHEME			EXAMINATION SCHEME			TOTAL MARKS	
THEORY HOURS	TUT. HOURS	PRACT. HOURS	THEORY		PRA/ORAL MARKS		T/W MARKS
			MARKS	HOUR			
4	-	2	100	3	25	25	150

- 1- String handling**  
The string constructors, string length, special string operation, character extraction, string comparison, searching and modifying string, string buffer.
- 2 Input/output and files.**  
File, string class, bytes streams, character streams, using stream I/O, serialization.
- 3 the collection frameworks**  
Collection interfaces, Collection classes, accessing a Collection via an Iterator, storing user defined classes in Collections, working with maps and comparator.
- 4 Networking**  
Basics, Inetaddress, TCP/IP client socket, URL connection, TCP/IP server socket.
- 5 The applet class**  
Basics, architecture, Applet skeleton, display methods, passing parameters to applets, Audio clip interface.
- 6 Event handling**  
Delegation event model and its use, event classes, sources of events, event listener interfaces, Adaptor classes, Inner classes.
- 7 Working with windows, graphics and text**  
AWT classes, windows fundamentals, Frame fundamentals, working with graphics- colors and fonts, Managing text O/P.
- 8 Using AWT controls, Layout managers, and Menus.**  
Control fundamentals, Labels, Buttons, Check Boxes, Lists, ScrollBars, Textfield & Textarea, Menubars and menus, DialogBoxes, handling events with AWT components.

SR.NO.	REFERENCES BOOL	AUTHOR	PUBLISHER
1.	The complete Reference Java	Herbert Schildt	TMH
2.	An Introduction to Java Programming	Liaing	PHI



**BHAVNAGAR UNIVERSITY**  
**B. E. SEM V (IT)**  
**IT-503 : MANAGEMENT INFORMATION SYSTEM**

TEACHING SCHEME			EXAMINATION SCHEME				TOTAL MARKS
THEORY HOURS	TUT. HOURS	PRACT. HOURS	THEORY		PRA/ORAL MARKS	T/W MARKS	
			MARKS	HOUR			
3	-	2	100	3	25	25	150

- 1.0 Information system : A Manager's View**
- Functions of Management
  - Activities of the organization
  - Framework for information systems
  - Development of MIS
  - Evolution of Data Processing
- 2.0 Concepts of systems and Organizations**
- Systems concept
  - Systems and their Environments
  - Systems' working and systems Approach in Problem solving
  - Information systems for feedback
  - Learning Organization
- 3.0 Strategic uses of information Technology**
- Support to Business Activities
  - Using IT for competitive Advantage
  - Inter organizational systems
  - Impact of internet & E-commerce
- 4.0 BPR and IT**
- Impact of IT and Reengineering of work
  - IT and Business Process Redesign
  - IT and Organizational Structure
- 5.0 Application to Functional Business Areas :**
- Operational Accounting and Financial information systems
  - Operational marketing information system
  - Operational productions information system
  - Operational Human resource information Systems
  - ERP Systems concept
  - Strategic and tactical Applications
- 6.0 Information Systems Planning & Design**
- Planning Strategies
  - Determining information Requirements
  - Ends / Means Analysis
  - System Development Process
  - Systems Analysis and Design
  - Evaluation of Alternative Options
  - Security and Ethical issues of information system

**TERM WORK :**

Term work shall consist of / case studies / exercise problems / problem solving / report preparation on the topics of syllabus as above. Assessment of term work will be on continuous basis.

**PRACTICAL / ORAL :**

If shall be based on term work prepared and on syllabus topics as above.

**TEXTS / REFERENCES :**

SR.NO.	TEXTS / REFERENCE	AUTHOR	PUBLISHER
1.	Management Information systems The Manager's View	Schultheis Robert and Summer Mary	Tata McGraw-Hill, New Delhi
2.	Management Information Systems	Murdick & Ross	PHI, New Delhi



**BHAVNAGAR UNIVERSITY**  
**B. E. SEM V (IT)**  
**IT-504 : FRONT END TOOLS**

TEACHING SCHEME			EXAMINATION SCHEME				TOTAL MARKS
THEORY HOURS	TUT. HOURS	PRACT. HOURS	THEORY		PRA/ORAL MARKS	T/W MARKS	
			MARKS	HOUR			
3	-	2	100	3	25	25	150

- 1- Terminology**
  - 1- Project
  - 2- Property List
  - 3- Form
  - 4- Form Layout
  - 5- Tool Box
  - 6- Object Browser
  - 7- Toolbar
  - 8- Component Manager
- 2- Working of Visual Basic**
  - 1- Create Interface
  - 2- Set properties
  - 3- Write Codes
  - 4- Compile
  - 5- Debug
  - 6- Edit
- 3- Creating an application**
  - 1- Select a small application. (Conversion, Calculator, Input-output)
- 4- Writing an event driven application**
  - 1- Programming Approach
  - 2- Structure Programming
  - 3- Object Oriented Programming.
    - i- Switch / Alarm
    - ii- Regulator
    - iii- Regulation with a time
    - iv- Intelligent program above all
- 5- Adding menus.**
  - 1- Types
    - i- Pop up
    - ii- Pull down
    - iii- Submenu
    - iv- stack
  - 2- Grouping
- 6- Programming in Visual Basic**
  - 1- Structure of Visual Basic Application
  - 2- Variable – Declaration, Scope, Constant, Data Types, Arrays, User defined data.
  - 3- Control Structure: If-then-Else, Select Case, For, Do, Loop, While, label.
  - 4- Module
  - 5- Procedure
  - 6- Code writing Mechanism
  - 7- Object: Communication, Working, Relation.
- 7- Debugging Application**
  - 1- Types of Error
    - i- Syntax
    - ii- Logical
    - iii- Runtime
  - 2- Debugging Techniques
    - i- MsgBox

- ii- Debu.print
- 3- Debugging Tools
- 8- Object Linking and Automation**
  - 1- Dynamic Data Exchange
    - i- Creating links.
    - ii- Design and Runtime links
  - 2- Object linking and embedding.
    - i- Manual creation of object.
    - ii- Automatic Creation of Object
    - iii- Creating Server.
- 9- Accessing Database**
  - 1- Data Control
  - 2- Data-bound Control
  - 3- ADO Library
- 10- Graphics**
  - 1- Drawing With Basic
  - 2- Point, Line, Rectangle, Circle.
  - 3- Selecting Color and Filling.
  - 4- Loading and Saving Picture
  - 5- Animation
- 11- Integration with explorer**
  - 1- Internet Explorer
  - 2- HTML
  - 3- Browsing specific page or document.
  - 4- Navigating History List.
- 12- Web development**
  - 1- Scripting and component
  - 2- Selection of Controls.
  - 3- Create control setup
- 13- Windows !PL**
  - 1- Definition and use.
  - 2- Getting Hardware Information
  - 3- Getting Hard-disk volume information.
- 14- Active X Controls.**
  - 1- Definition
  - 2- Distinguish between VB documents and Active X.
  - 3- Create for Web.

REFERENCES:

SR.NO.	REFERENCE	AUTHOR	PUBLISHER
1-	Peter Norton's Guide to Visual Basic 4 For Windows'	Peter Norton	Techmedia
2-	Peter Norton's Guide to Visual Basic 6	Peter Norton	Techmedia
3-	Special Edition using VB6	Siler & Spot	PHI
4-	Practical VB6	Reselman & Peasley	PHI

**BHAVNAGAR UNIVERSITY**  
**B. E. SEM -V (IT)**  
**IT-505 : RELATIONAL DATABASE MANAGEMENT SYSTEMS**

TEACHING SCHEME			EXAMINATION SCHEME				TOTAL MARKS
THEORY HOURS	TUT. HOURS	PRACT. HOURS	THEORY		PRA/ORAL MARKS	T/W MARKS	
			MARKS	HOUR			
4	-	2	100	3	25	25	150

**INTRODUCTORY CONCEPTS :**

Three scheme architecture of DBMS brief history of DBMS development introduction to ER model introduction to relational data model relational algebra introduction to GQL.

Database design conceptual database design. theory of normalization.

Relational theory and sql relational concepts:

Relational algebra relational calculus. ansi-sql-s: ddl, dml, constraints and assertions. views. database security.

Application development using sql:

Host language interface and embedded sql programming 4 gl's, forms management and report writes stored procedures and triggers. Internals of RDBMS physical data structures, data systems architecture, query optimization; join algorithm. Statistics and cost base optimization transaction processing, concurrency control and recovery management transaction model properties and state serializability, lock base protocols. two phase locking. Special topics brief introduction to distributed database systems. Temporal databases and object oriented database.

**Texts / references :**

- 1- H.F.korth and Silberschatz Abraham. database systems concepts. McGraw hall 1991.
- 2- Ramez Elmasri and Shamkant B. Navatha. fundamental of database systems. The Benjamin / Cummings publishing co., second edition 1994.

**BHAVNAGAR UNIVERSITY**  
**B. E. SEM -V (IT)**  
**IT-506: INTRODUCTION TO ADVANCED WEB PROGRAMING**

TEACHING SCHEME			EXAMINATION SCHEME				TOTAL MARKS
THEORY HOURS	TUT. HOURS	PRACT. HOURS	THEORY		PRA/ORAL MARKS	T/W MARKS	
			MARKS	HOUR			
	-	2			25	25	50

A Fully functional database driven web content should be developed by using one or more of the following technologies

- Java programming language
- Java server pages
- JDBC
- Various Scripting language ex. Java scripts, VB scripts, Python etc
- C sharp
- ASP, ASP .NET
- PHP
- MySQL
- Apache
- Oracle/DB2/SQL Server

Reference Books:

- Training and reference: Murach's C# 2005 Murach and SPD
- Dot Net framework essential. Thai. O'reilley
- Microsfot ASP.NET step by step - George Shepherd Microsoft press
- Learning PHP and MySQL Michele davis and Jon A Phillips, O'Reilley
- AJAX for beginners Ivan Bayrons
- Object oriented PHP - Peter Lavin, No start press
- How to program JAVA Dietel and deitel Prentice Hall inc.
- Other resources from various web and online forums