

SARDAR PATEL UNIVERSITY
B.Sc Information Technology
Semester – 4
US04CINT21: Operating Systems
(w.e.f June 2019)

Credits : 4

Exam Duration: 3hrs

Lectures per week : 4

All units carry equal weightage.

Unit	Description in detail	Weighting (%)
I	<p>Introduction and Scheduling Introduction to Operating System, Operating System Services, Different types of Operating Systems: Real time, Time sharing, Distributed and Multiprogramming. OS Structure – Simple Structure, Layered Approach, Microkernel. CPU Scheduling: Introduction to process, process control block, process scheduling FCFS Scheduling, SJF scheduling, Priority scheduling, Round Robin scheduling</p>	25%
II	<p>Memory Management Memory Management: Concept, Basic memory management techniques:, Swapping, Demand Paging 1) The Optimal Page Replacement Algorithm 2) The LRU Page Replacement Algorithm 3) The FIFO Page Replacement Algorithm</p>	25%
III	<p>Process Synchronization, Deadlocks and Introduction to Linux Introduction to Cooperating process Process Synchronization, Critical Section Problem Two process solution Deadlock and characterization Introduction to Linux System Features of Linux</p>	25%
IV	<p>Basic Linux commands Basic Commands: login, logout, date, man, pwd, who, dir, ls, cd, mkdir, rmdir, wc, echo Use of Wild card characters Types of FAP, use of chmod command Basic commands like cp, mv, rm, rev, file redirection, grep, cut, paste, find sort commands with example Introduction to shell script: execution of it, shell script variable, expr, test commands Control structure: if, if..else, case structure Iteration: while, for construct, break, continue, exit commands</p>	25%

Basic Text & Reference Books :-

- 1 Andrew S. Tanenbaum: Operating System design & Implementation, Prentice Hall International
- 2 James Peterson and Abraham Silberschatz: Operating System Concept, Addison Wesley
- 3 Bryan Pfaffenberger - Linux Commands Instant reference , BPB Publication
- 4 Sumitabha Das - UNIX , Concepts and Applications – Tata McGraw-Hill Publications
- 5 Advanced Linux Programming – Samuel, Techmedia Publications

SARDAR PATEL UNIVERSITY
B. Sc. Information Technology
Semester - 4

US04CINT22 : Relational Database Management Systems-II
(w.e.f June 2019)

Credits : 4

Exam Duration: 3hrs

Lectures per week : 4

All units carry equal weightage.

Unit- 1: Relational Database Design

- Entity-relationship modeling (different types of entities, attributes, relationships and their representation in the E-R diagram)
- Case studies of data modeling using E-R modeling
- Consequences of poor Data base Design
- Normalization, 1st Normal Form, 2nd Normal Form, 3rd Normal Form, Boyce-Codd Normal Form
- Examples of normalization

Unit -2: Basics of PL/SQL

- PL/SQL - Introduction and advantages
- Understanding PL/SQL Block structure
- Fundamentals of PL/SQL Language - data types (BOOLEAN, CHAR, NUMBER, DATE, VARCHAR2), variables, constants and expressions (CASE expression)
- Operators
- Conditional statement – IF and CASE statements
- Controlling loop iterations – LOOP, EXIT, EXITWHEN, WHILE, FOR
- Sequential control statement – GOTO and NULL

Unit – 3: Cursors and Exception Handling

- SELECT..INTO statement
- Working with cursor : introduction, types, attributes and processing (i.e. declaring, opening, fetching and closing), using parameterized cursor, using cursor FOR loop
- Error Handling : introduction, advantages of exceptions, types of exceptions
- Working with user-defined exceptions – declaration, RAISE_APPLICATION_ERROR, Pragma EXCEPTION_INIT, SQLCODE and SQLERRM

Unit – 4: Stored Subprograms, Database Triggers and Packages

- Stored procedures – introduction, creating, modifying, executing and dropping procedures
- Stored functions – introduction, creating, modifying, executing and dropping functions
- Database triggers – introduction, creating, modifying and dropping triggers, types of triggers
- Packages – meaning, advantages, creating, modifying and dropping

Basic Text & Reference Books :-

1. Ivan Bayross : SQL, PL/SQL The programming language of Oracle, 3rd revised edition, BPB Publications
2. Database Management Systems ,Raghu Ramkrishnan & Johannes, Mc Graw Hill, 3rd Edition
3. SQL/PLSQL for Oracle9i, P. S. Deshpande, dreamtech press, reprint edition 2009
4. Understanding Database Management System : S. Parthasarthy and B.W.Khalkar, First edition – 2007, Master Academy
5. Oracle9i PL/SQL : A developer's guide, Buluku Lakshman, A press, edition 2003

SARDAR PATEL UNIVERSITY
Vallabh Vidyanagar
B.Sc Information Technology
Semester – 4
US04CINT23 : Operating Systems Lab
(w.e.f June 2019)

Credits : 2
Contact Hrs. per Week: 4

External Marks : 50
Exam Duration : 2 Hrs

Description in detail	Weightage (%)
Practical based on US04CINT21 Operating Systems	100%

B.Sc Information Technology
Semester – 4
Relational Database Management Systems-II Lab
(w.e.f June 2019)

Credits : 2
Contact Hrs. per Week: 4

External : 50 Marks
Exam Duration : 2 Hrs.

Description in Detail	Weightage (%)
Practical based on US04CINT22 - Relational Database Management Systems-II	100%