SARDAR PATEL UNIVERSITY
B.Sc. Information Technology
Semester – 3
US03CINT21: System Analysis & Design
(w.e.f June 2019)

Credits : 4 **Exam Duration: 3hrs**
Lectures per week : 4
All units carry equal weightage.

Unit	Description in detail
I	**Systems Analysis and Systems Development Life Cycle (SDLC)** The concept of a system The elements and characteristics of a system Types of systems Meaning of systems analysis Role of a systems analyst Stages of systems analysis : Problem identification, Feasibility study and cost benefit analysis, System requirement analysis Stages of systems design : System design specification and programming, System implementation, follow up, maintenance, Evaluation of a system
II	**Structured Systems Analysis and Design Method and Input/output Design** Structured Systems Analysis and Design (SSADM) – need and Meaning SSADM Methodology : System survey, Structured analysis, Structured Design, Hardware study, System Implementation, Maintenance Advantages of SSADM. System design control Input : Data capture objectives, Data verification and validation Output : Design principles of output, Output objectives
III	**Data Flow Diagrams & Fact Gathering Techniques** Fact finding techniques : Interviewing, Questionnaires, Record inspection, Observation Data Flow Diagrams (DFDs) – meaning and significance Symbols used in DFDs, constructing a DFD with illustration. Illustration case study – 3 and 5 only Physical and logical DFDs Use of system flowcharts
IV	**Computer Assisted System Engineering (CASE) Tools and Quality Assurance** CASE : An introduction CASE components : Diagramming Tools, Information repository, Interface generator, Code generator,Management tools Benefits of CASE, limitations of CASE Levels of Assurance Testing strategies

Basic Text & Reference Books:

1 S. Parthasarthy & B. W. Khalkar : System Analysis & Design, 1st Edition, Master Ed. Cons., Nasik
2 James A. Senn : Analysis & Design of Information System 2nd Edition, McGraw-Hill Int.

SARDAR PATEL UNIVERSITY
B.Sc Information Technology
Semester – 3
US03CINT22 : Relational Database Management Systems-I
(w.e.f June 2019)

Credits : 4 *Exam Duration: 3hrs*
Lectures per week : 4

All units carry equal weightage.

Unit - 1 Introduction to DBMS, RDBMS and Data Modeling

- DBMS : Meaning, Advantages, Disadvantage
- The three-schema architecture for a Database Management System (DBMS)
- Introduction to data models (hierarchical, network, relational)
- The relational data model: concepts and terminology, relationships and relationship types
- Codd Rules
- Difference between DBMS and RDBMS

Unit – 2 Introduction to SQL

- SQL - introduction , advantages and disadvantages
- Data types – built-in (number, char, varchar2, date, raw, long raw)
- Types of SQL Statements : DDL (Data Definition Language), DML (Data Manipulation Language), DCL (Data Control Language), TCL (Transaction Control Language)
- Working with SQL*Plus – overview and basic commands like ed, start, get, save, exit, connect, set linesize, set pagesize and host
- Creating table and inserting data - CREATE TABLE, INSERT, retrieving data using query – SELECT , manipulating data – DELETE and UPDATE , modifying and removing table – ALTER TABLE and DROP TABLE.

Unit – 3 Data Constraints and Functions

- Pseudo columns – ROWID, ROWNUM, USER, UID, SYSDATE
- Null values, TAB table, DUAL table
- Operators – arithmetic, relational, logical, range searching, pattern matching and set
- Data constraints – Introduction, advantages and disadvantages
- Type of data constraints – NOT NULL, UNIQUE, PRIMARY KEY, FOREIGN KEY and CHECK
- Modifying constraints, working with data dictionary and use of USER_CONSTRAINTS
- Functions – introduction, merits and demerits, types of functions (scalar and aggregate)
- Scalar : Numeric functions (FLOOR, MOD, POWER, ROUND, SQRT and TRUNC), Character functions (CHR, ASCII, CONCAT, INITCAP, LOWER, SUBSTR,TRIM, UPPER), Date functions (ADD_MONTHS, LAST_DAY, NEXT_DAY, MONTHS_BETWEEN), Conversion functions (TO_NUMBER, TO_CHAR and TO_DATE)
- Aggregate fun : AVG, COUNT, MAX, MIN, SUM
- Miscellaneous functions – NVL, DECODE, COALESCE

Unit – 4 Query, Subquery, Joins, Transaction Management

- Query and subquery, types of subquery
- Creation and manipulation of database objects – indexes, views, sequences.
- Joining tables – ANSI Style, types of joins (cross join, natural join, equijoin, outer joins, self join)
- Data control language statements – GRANT and REVOKE
- Transaction control language statements – COMMIT, ROLLBACK and SAVEPOINT

Basic Text & Reference Books:

1. An introduction to Database Systems : Bipin C. Desai, Galgotia Poblications Pvt. Ltd.
2. Ivan Bayross : SQL,PL/SQL The programming language of Oracle, 3rd revised edition, BPB Publications
3. SQL/PLSQL for Oracle9i, P. S. Deshpande, dreamtech press, reprint edition 2009
4 Understanding Database Management Systesm : S. Parthsarthy and B.W.Khalkar, First edition – 2007, Master Academy
5 *Orale9i The Complete Reference , Kevin Loney, George Koch, Oracle Press*

SARDAR PATEL UNIVERSITY
Vallabh Vidyanagar
B.Sc Information Technology
Semester – 3
US03CINT23 : System Analysis And Design Lab
(w.e.f June 2019)

Credits : 2 *External : 50 Marks*
Contact Hrs per week : 4 *Exam Duration : 2 Hrs.*

Description in Detail	Weightage (%)
Practical Based on US03CINT21 **System Analysis And Design**	**100%**

SARDAR PATEL UNIVERSITY
Vallabh Vidyanagar
B.Sc Information Technology
Semester – 3
Relational Database Management Systems-I Lab
(w.e.f June 2019)

Credits : 2 *External : 50 Marks*
Contact Hrs per week : 4 *Exam Duration : 2 Hrs.*

Description in Detail	Weightage (%)
Practical Based on US03CINT22 **Relational Database Management Systems - I**	**100%**