Paper Code: US02FBVS51	Total Credits:3
Title Of Paper: Software Analysis and Design	

Unit	Description in detail	Weightage (%)
1	**: Introduction to System Development Life Cycle (SDLC)** - System Concepts: Elements, characteristics , types - Meaning of systems analysis - Role of a systems analyst - Introduction to Systems Development Life Cycle (SDLC) - Systems analysisstages : Problem identification, Feasibility study and cost benefit analysis, System requirement analysis - Systems design stages : System design specification and programming, System implementation, follow up, maintenance, Evaluationof a system	25%
2	**Structured Systems Analysis and Design Method** - Structured Systems Analysisand Design (SSADM) – need and Meaning - SSADMMethodology : System survey, Structured analysis, Structured Design, Hardware study, System Implementation,Maintenance - Advantages of SSADM. - System design control	25%
3	**I/O Design & Fact Gathering Techniques** - Input : Data capture objectives, Data verification and validation - Output : Design principles of output, Output objectives - Fact finding techniques : Interviewing, Questionnaires, Record inspection, Observation	25%
4	**DFDs and CASE Tools** - Data Flow Diagrams (DFDs) – meaning and significance - Symbols used in DFDs, constructing a DFD with illustration , - Physical and logical DFDs - Use of system flowcharts - An introduction to Computer Assisted System Engineering (CASE) CASE components : Diagramming Tools, Information repository, Interface	25%
	Practical:	
	The students are required to do Dictation, Narration, Listening Comprehension, Note Making/Note Taking as given by concerned faculty	

Basic Text & Reference Books :-

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

Paper Code: US02FBVS52	Total Credits:3
Title Of Paper: Mathematics	

Unit	Description in detail	Weightage (%)
1	**Graph Theory** - Graph and multi graphs; degree of a vertex; paths; connectedness; connected components; cut points; bridges; complete graphs; regular graphs; matrices and graphs.	25%
2	**Planner Graphs and Trees** - Planner graphs; maps and regions; Euler's formula (only statement); non planner graphs; colored graphs; coloring of maps; trees. spanning trees.	25%
3	**Combinatorial Analysis** - Counting principle, permutations and combinations.	25%
4	**Elementary Data Analysis II** - Measures of dispersions - range; quartile deviation; mean deviations, standard deviations; - measure of skewness – Karl pearson's coefficient of skewness, Bowley's coefficient of skewness	25%
	Practical:	
	The students are required to do Dictation, Narration, Listening Comprehension, Note Making/Note Taking as given by concerned faculty	

MAIN REFERENCE BOOKS :

1. S. Lipschutz and M. l. Lipson, Discrete Mathematics, Schaum's Series (International Edition 1992)
2. Narsingh Deo, Graph Theory with Applications to Engineering and Computer Science (Prentice Hall Series in Automatic Computation)
3. Narsingh Deo, Graph Theory
4. S. C Gupta, Fundamentals of Statistics, Himalaya Publishing House 2004
5. S. P Gupta, Statistical Methods, Sultan Chan and sons, 2004

SARDAR PATEL UNIVERSITY
B.Voc (Software development)
Semester: II
Syllabus with effect from: June 2021

Paper Code: US02FBVS53	Total Credits:3
Title Of Paper: Data Structures and Programming	

Unit	Description in detail	Weightage (%)
1	**User Defined Functions** - Introduction - Elements of UDF, Categories of UDF - Recursion, Nesting Function - Variable Scope , visibility and lifetime in function - Storage Classes	25%
2	**Structures, Unions & Pointers** - Defining a structure,Accessing a structure variable, Operations on structure members, Copying and comparing variables - Arrays of structure, Arrays within Structures,Unions - **Pointer-**Definition and Concept, Advantage of usingpointer - Pointer arithmetic	25%
3	**Advance Concept of Pointer & Link List** - **Pointer-**Array of pointers - Pointers and Functions - **Dynamic Memory Allocation** : Memory Allocation Function malloc(), calloc(), realloc(), free() - **Link List :** Concepts, Advantages, Overview of typesof Link list, Operations on Singly Link List - Application of Link list	25%
4	**Files and Preprocessors** - Concepts of File Management Files functions –fopen(), fclose(), fprintf(), fscanf(), fseek(), ftell(), rewind(), putc(), getc(), putw(), getw()Error handling functions - **Preprocessors:** Types of Preprocessors, Macro substitutiondirectives, File inclusion directives, Compiler control directives	25%
	Practical:	
	The students are required to do Dictation, Narration, Listening Comprehension, Note Making/Note Taking as given by concerned faculty	

Reference Books

1. Kernighan B., Ritchie D. : The C Programming Language, Prentice Hall.
2. Cooper H. & Mullish H : The Sprit of C, Jaico Publication House, New Delhi.
3. Balaguruswami : Programming in ANSI C., Tata McGraw Hill Publication.
4. Yashwant Kanetkar: Let Us C
5. S.B. Kishor Data Structures, Edition 3. Das Ganu Prakashan, Nagpur, 2008.
6. Alfred V. Aho, Jeffrey D. Ullman, John E. Hopcroft. *Data Structures and Algorithms*. Addison Wesley, 1983.

SARDAR PATEL UNIVERSITY
B.Voc (Software development)
Semester: II
Syllabus with effect from: June 2021

Paper Code: US02FBVS54	Total Credits:3
Title Of Paper: Basics of RDBMS	

Unit	Description in detail	Weightage (%)
1	**Relational Database concepts and Data Modeling** – Database Management System (DBMS) – three schema architecture – Data models and examples of current RDBMS products – The relational data model: concepts and terminology, operationson data (DDL, DML), relationships and relationshiptypes – Integrity constraints – Codd rules – Entity-relationshipmodeling (different typesof entities, attributes, relationships and their representation in the E-R diagram) – E-R modeling case studies	**25%**
2	**Structured Query Language** – Introduction of SQL – advantages and disadvantages of SQL – Data types of SQL – Types of SQL Statements : DDL , DML , DCL , TCL – 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 removinarchatg table – ALTER TABLE and DROP TABLE.	**25%**

3	**Concepts of 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 (ABS, FLOOR, MOD, POWER, ROUND, SIGN, 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	**25%**
4	**Query, Subquery, Joins, Transaction Management and Reporting through SQL*Plus**	
	– Query and subquery, types of subquery – Creation and manipulation of database objects – indexes, views, sequences and synonym – Joining tables, types of joins (cross join, natural join, inner join, equijoin, outer joins, self join. – Data control language statements – GRANT and REVOKE Transaction control language statements – COMMIT, ROLLBACK and SAVEPOINT – Overview of SQL*Plus report – Building a simple report – Reporting commands – remark, setheadsep, ttitle, btitle, column, breakon, compute, spool, set pause.	**25%**
	Practical:	
	The students are required to do Dictation, Narration, Listening Comprehension, Note Making/Note Taking as given by concerned faculty	

MAIN 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. Kevin Loney, George Koch, Orale9i The Complete Reference , Oracle Press

BOOKS FOR ADDITIONAL READING :
1. Understanding Database Management Systesm : S. Parthsarthy and B.W.Khalkar, First edition – 2007, Master Academy
2. P. S. Deshpande : SQL/PLSQL for Oracle9i, dreamtech press, reprint edition 2009

SARDAR PATEL UNIVERSITY
B.Voc (Software development)
Semester: II
Syllabus with effect from: June 2021

Paper Code: **Code: US02CBVS51**	Total Credits:3
Title Of Paper: Data Structure and Programming Practical Lab	

Part	Description in detail	Weightage (%)
1	• Practical based on Data Structure and Programming Lab	100%

SARDAR PATEL UNIVERSITY
B.Voc (Software development)
Semester: II
Syllabus with effect from: June 2021

Paper Code: **Code US02CBVS52**	Total Credits:3
Title Of Paper: Basics of RDBMS Practical Lab	

Part	Description in detail	Weightage (%)
1	• Practical based on Basics of RDBMS Lab	100%