# SARDAR PATEL UNIVERSITY
# B.Sc. Computer Science
# IV Semester

## US04CCSC21 Advanced C Programming and Introduction to Data Structures)

**Effective from June-2019**

**Credits : 4**
**Lectures per week : 4**
**University examination duration: 3 Hours**
**All units carry equal weightage.**

| | |
|---|---|
| ***Unit 1*** | **Structures and Unions**<br>- Basics of Structures, Structures and functions, Structures and Arrays<br>- Pointers to structures, Nested structures<br>- Unions, Working and initializing with unions<br>- Structures versus Unions<br>- Typedef and enum keyword |
| ***Unit 2*** | **File Handling**<br>- Introduction to File handling and usage<br>- Operations on files, File access modes, Handling text files<br>- File management I/O functions |
| ***Unit 3*** | **Introduction to Data Structures, Stack and Queue**<br>➢ **Introduction to Data Structures**<br>- Introduction to data structures, their usage, applications and advantages<br>- Primitive and non-primitive data structures and operations on them<br>- Linear and non-linear data structures<br>➢ **Stack**<br>- Introduction to stacks, operations on stacks<br>- Applications of stacks<br>➢ **Queues**<br>- Queues and their uses<br>- Types of queues : Simple queues, Circuler queues, Double ended queues |
| ***Unit 4*** | **Linked Lists, Sorting and Searching Techniques**<br>**Introduction to linked lists**<br>- Types of linked lists<br>- Singly linked lists, doubly linked lists, Circular linked lists<br>- Applications of linked lists<br>**Sorting and Searching Techniques**<br>- Basic sorting techniques (Bubble, Selection, Insertion)<br>- Searching techniques (Sequential and Binary) |

**REFERENCE BOOKS:**


- Balaguruswami: Programming in ANSI C., Tata McGraw Hill Publication.
- Cooper H. & Mullish H: The Spirit of C, Jaico Publication House, New Delhi.
- Kernighan B., Ritchie D.: The C Programming Language, Prentice Hall.
- Tremblay J. & Sorenson P.G.: An Introduction to Data Structures with application, 2nd Edition, McGraw-Hill International Edition, 1987
- Singh Bhagat & Naps Thomas: Introduction to Data Structures, Tata McGraw-Hill Publishing Co. Ltd., 1985.

# SARDAR PATEL UNIVERSITY
# B.Sc. Computer Science
# IV Semester

## US04CCSC22 (Web Application Development – II)

**Effective from June-2019**

**Credits : 4**
**Lectures per week : 4**
**University examination duration: 3 Hours**
**All units carry equal weightage.**

| | |
|---|---|
| **Unit 1** | **Introduction to Scripting Languages and Basics of JavaScript**<br><br>- Concept of Client-Side and Server-Side scripting,<br>- Needs of scripting languages.<br>- Introduction to JavaScript with example<br>- JS datatypes, variable, operators, arithmetic |
| **Unit 2** | **JavaScript Control statements and Loops**<br><br>- Conditional Statements: if statement, if..else, if..elseif..else, Switch<br>- Looping Statements: for, for/in, while, do/while<br>- JS Break and Continue statements |
| **Unit 3** | **JavaScript Functions and Arrays**<br><br>- Defining functions, returning values from functions, user define function<br>- Introduction to array, creating and accessing elements of array<br>- JavaScript Array Methods: toString(), join(), pop(), push(), shift(), unshift(), sort() |
| **Unit 4** | **JavaScript DOM, Object and Events**<br><br>- Introduction to DOM, Methods, Documents and Elements<br>- JS Object Concept: Definition, Properties, Methods<br>- Concept of events, events: onBlur, onChange, onClick, onFocus, onMouseOver, onKeyPress, onReset |

**REFERENCE BOOKS:**


- Beginning Java script, Paul Wilton, Jeremy Mc Peak, 4th edition, Wiley Pub.
- Java script Bible, Danny Goodman, Micheal Morrison, 6th edition, Wiley Pub
- Web reference: www.w3schools.com

# SARDAR PATEL UNIVERSITY

**US04CCSC23 (Advanced C Programming and Introduction to Data Structures - Lab)**

**Effective from June-2019**

**(Practical)**

# Part – I

**Credits : 2**
**No. of laboratory hours per week : 4**

**University examination duration : 2 Hours**

- **Practical Based on US04CCSC21**

# Part – II

**Credits : 2**
**No. of laboratory hours per week : 4**

**University examination duration : 2 Hours**

- **Practical Based on US04CCSC22**