

## Teaching Plan

### SEC 2

#### R Programming

**Instructor's Name:** Rabisankar Pramanik, State Aided College Teacher, Debra Thana SKS Mahavidyalaya.

<b>Course Code:</b> SEC 2	<b>Type of Course:</b> Skill Enhancement Course
<b>Credits:</b> 02 (Theory-01 and Practical-01)	<b>Duration:</b> February 28, 2023 to July 08, 2023
<b>Semester:</b> Four	<b>Marks:</b> 50 [ <b>End Semester Exam:</b> 40 ( <b>Theory:</b> 25 and <b>Practical:</b> 15) + <b>Internal Assessment:</b> 5 + <b>Class Attendance:</b> 5 ]

#### Course Plan:

##### Theory:

Unit	Topics	No of lectures	Duration in Hours
Unit 1	<b>Introduction:</b> Overview and History of R, Getting Help, Data Types, Subsetting, Vectorized Operations, Reading and Writing Data.	10	10
Unit 2	Control Structures, Functions, lapply, tapply, split, mapply, apply, Coding Standards	12	12
Unit 3	Scoping Rules, Debugging Tools, Simulation, R Profiler.	10	12

##### Practical:

Assignment	Topics	No of lectures	Duration in Hours
Assignment 1	Write a program that prints "Hello World" to the screen.	1	2
Assignment 2	Write a program that asks the user for a number n and prints the sum of the numbers 1 to n	1	2
Assignment 3	Write a program that prints a multiplication table for numbers up to 12.	1	2
Assignment 4	Write a function that returns the largest element in a list.	1	2
Assignment 5	Write a function that computes the running total of a list.	1	2
Assignment 6	Write a function that tests whether a string is a palindrome.	1	2
Assignment 7	Implementation the following sorting algorithms: Selection sort, Insertion sort, Bubble Sort	3	6
Assignment 8	Implementation linear search.	1	2
Assignment 9	Implementation binary search.	1	2
Assignment 10	Implementation matrices addition, subtraction and Multiplication.	1	2

##### Textbooks:

1. **An Introduction to R** by **William N. Venables** and **David M. Smith**, Network Theory Limited, **Second Edition**, 2009.
2. **The Art of R Programming** by **Norman Matloff**, No Starch Press, 2013.

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