Teaching Lesson Plan

MDC-1

Mathematical and Computation Thinking Analysis (3 credits)

Lecture hours: 45

OBJECTIVES: To focus primarily on the mathematical arid statistical tools used to support the study of natural and social sciences.

SN	Subject and Objectives	Lectures Hrs	Methodology	Evaluation Mode
Unit-I	**Statistics & Probability**	**15Hrs**		
	Measure of Dispersion: Range, Mean Deviation, Variance, Standard Deviation Random experiment, sample space, Events: occurrence of events, 'not', 'and' & 'or' events, exhaustive event, mutually exclusive events, probability of an event, conditional probability LPP: objective functions, constraints, mathematical formulation of LPP, Graphical method of solution, feasible and infeasible regions/solutions, optimal feasible solution	15	PPT, Illustrations	Q & A, Assignments
Unit-II	**Introduction to Computational Thinking**	**15Hrs**		
	What is computational thinking? Problem definition, Problem Solving, Problem decomposition, Abstraction, Greedy Method, Divide and Conquer, pseudocode, understanding algorithms, Concept and designing of flowchart	15	PPT, Illustrations	CIA
Unit-III	**Computational Thinking and Analysis**	**15Hrs**		
	Data organizing and Data filtering by quantitative dataset using Excel files. Data analysis using bar chart, column chart, line chart, pie chart, scatter chart, surface chart, statistical chart and radar chart. Computing sum, average, mid-point, relative frequency, variance and standard deviation.	15	PPT, Illustrations	Q & A, Assignments

Reference Books:

1. Lorenzo Peccati, Mauro DÁmico & Margherita Cigola, Maths for Social Sciences, Springer Nature Switzerland, 2018
2. Kumar Mrityunjay, Indra Nath Sahu, "Mathematical and Computational Thinking and Analysis'' U.P.(Agra), Shiksha Sagar Publisher and Distributors.
3. N.M. Kapoor, Fundamentals of Mathematical Statistics, Pitambar Publication, 2005.
4. David Riley and Kenny Hunt, Computational thinking for modern solver, Chapman & Hall/CRC, 2014
5. R.G. Dromey , "How to solve it by Computer", PHI, 2008
6. Nabendu Paul and Sahadeb Sarkar, Satistics, Concepts and Applications, PHI, 2013.

Prepared by: Department