Specialization	Course Name with Code	Module	End Date for Completion	Course contents
FUNDAMENTALS OF COMPUTING	**Principles Of Computing Using Data Structures (CRA 4065)** Mapped to ***Course 4 – Principles of Computing (Part II)***	**I**	September 12, 2023	• The importance of Searching • Generators • Stacks and Queues • Inheritance • Grid class • Grid Search
		II	October 12, 2023	• Recursion • Binary Search • Visualizing recursion • Recurrences • Reading Files • Importance of trees • Lambda • Illustration of trees • Minimax – Examples
		III	November 16, 2023	• Importance of Modeling, • Assertions • Invariants • Modeling • Software Development
	Algorithmic Thinking (CRA 4066) Mapped to **Course 5 &6 - Algorithmic Thinking (Part I and Part II)**	**I**	September 12, 2023	• What is Algorithmic Thinking? • Algorithmic efficiency • Class structure • Graphs • Brute-force algorithms • Graph representations • Plotting • Analysis of citation graphs • Asymptotic analysis • "Big O" notation • Pseudocode • Breadth-first search • Connected components • Graph resilience • Analysis of Computer Networks

		II	October 12, 2023	• Sorting • Searching • Big-O notation • The Master Theorem • Closest pairs of points • Clustering of points • Comparison of clustering algorithms
		III	November 16, 2023	• Dynamic programming • Running time of DP algorithms • Local and global sequence alignment • Computation of sequence alignments • Applications to genomics and text comparison