Sardar Patel Institute of Technology

Bhavan's Campus, Munshi Nagar, Andheri (West), Mumbai-400058-India
(Autonomous Institute Affiliated to University of Mumbai)

Course Code	Course Name	Teaching Scheme (Hrs/week)			Credits Assigned			
		L	T	P	L	T	P	Total
CPEL7021	Elective-IIAdvanced Algorithm Laboratory	--	--	2	--	--	1	1
		Examination Scheme						
		ISE		ESE			Total	
				Practical	Oral			
		40		-	20		60	

Pre-requisite Course Codes	CPE7021(Advanced Algorithm)	
At end of successful completion of this course, student will be able to		
Course Outcomes	CO1	Ability to apply and implement learned algorithm design techniques and data structures to solve problems.
	CO2	Ability to implement different operations of red-black trees and binomial heaps.
	CO3	To demonstrate dynamic programming algorithms.
	CO4	Ability to implement Graph algorithms in solving variety of problems.

Exp. No.	Experiment Details	Ref.	Marks
1	Usethe B-treeinsertion/search algorithms towrite a B-tree ADT anduseitinyourprogramtoconstructadictionaryrepresentingthebooktitleheldinvariouslibraries.Theprogramthenshouldanswerqueriestothedictionaryaboutbooktitles.	1	5
2	Implementation of Red-Black trees and its various operations.	1	5
3	Implementation of Binomial Heaps and its various operations	1	5
4	Implementation of Dynamic programing: matrix chain multiplication Cutting rod example	1	5
5	Implementation of Bellman ford , Johnson's algorithm for sparse graphs	1	5
6	Implementation of Ford Fulkerson algorithm , push -relabel to front methods	1, 2	5
7	Program to Find closest pair of points, Determining the convex hull	1, 3	5
8	Implementation of Simplex algorithm	1	5
	Total Marks		**40**

References:

[1] T.H.Coremen , C.E. Leiserson,R.L. Rivest, and C. Stein, "Introduction to algorithms", 2nd edition , PHI publication 2005.

[2] John Kleinberg, Eva Tardos, "Algorithm Design", Pearson