BONAM VENKATA CHALAMAYYA INSTITUTE OF TECHNOLGY & SCIENCE
(AUTONOMOUS)
(Approved by AICTE, Permanently Affiliated to JNTUK, Kakinada, Accredited by NAAC with 'A' Grade)
DEPARTMENTOFELECTRONICS AND COMMUNICATIONENGINEERING

I YEAR II SEMESTER					
D2525705	PHYSICAL DESIGN VERIFICATION LAB	L	T	P	C
		0	1	2	2

Course Outcomes: At the end of the course, student will be able to (Four to Six)

		Knowledge Level (K)#
CO1	Implement and analyze graph-based algorithms used in physical design automation, including depth-first search, breadth-first search, spanning trees, and shortest path algorithms	K4
CO2	Apply computational geometry techniques such as line sweep and extended line sweep methods in geometric problem-solving relevant to VLSI layout	K3
CO3	Design and evaluate partitioning algorithms including Kernighan–Lin, Fiduccia–Mattheyses, and Goldberg–Burstein algorithms, as well as simulated annealing and evolution-based approaches	K5
CO4	Implement floorplanning techniques using constraint-based, integer programming, hierarchical tree, rectangular dualization, and simulated evolution strategies	K4
CO5	Develop and compare routing algorithms for two-terminal and multi-terminal nets, including maze routing and Steiner tree-based algorithms like SMST and Z-RST	K4

#Based on suggested Revised BTL

Mapping of course outcomes with program outcomes

Cycle	Syllabus	
Cycle 1	1) Graph algorithms: a) Graph search algorithms: i. Depth first search ii. Breadth first search b) Spanning tree algorithm: i. Kruskal's algorithm c) Shortest path algorithm: i. Dijkstra algorithm ii. Floyd-Warshall algorithm d) Steiner tree algorithm	
Cycle 2	2) Partitioning algorithms: a. Kernighan–Lin algorithm b. Fiduccias–Mattheyses algorithm c. Simulated annealing and evolution algorithms 3) Floor planning algorithms: i) Constraint based methods ii) Integer programming based methods iii) Rectangular dualization based methods	

Dr. T.S.S. PHANI
B.E, M.Tech, Ph.D, MIETE, MIAENG
Professor & HOD
Department of ECE
BVCITS, Batlapalem

	iv) Simulated evolution algorithms 4) Routing algorithms - Two terminal algorithms: a) Maze routing algorithms: i) Lee's algorithm ii) Soukup's algorithm iii) Hadlock algorithm b) Line-Probe algorithm c) Shortest path based algorithm	

Software required: C/C++ Programming Language /Relevant software

Reading:

1) Naveed Shervani, Algorithms for Physical Design Automation, 3rd Edition, Kluwer Academic,1998.

2) Charles J Alpert, Dinesh P Mehta, Sachin S. Sapatnekar, Handbook of Algorithms for Physical Design Automation, CRC Press,2008.

Dr. T.S.S. PHANI
B.E, M.Tech, Ph.D, MIETE, MIAENG
Professor & HOD
Department of ECE
BVCITS, Batlapalem