

Indian Institute of Information Technology,  
Design and Manufacturing Kancheepuram

INTRODUCTION OF NEW COURSE

Course Title	Optimization Techniques	Course No.	INT 501			
		Structure	3	0	0	3
Offered for	Research scholars, PG, B.Tech (Higher semesters)	Status	Elective			
Faculty	Dr. M. A. Shalu, Dr. B. Shahul Hamid Khan, Dr. B. Sivaselvam	Type	New			
Pre-requisite	COT	To take effect from	August 2009			
Submission date	Date of approval					
July 2009						

**Objectives:** Optimization problems often appear in science and engineering. The objective of the course is to make the students aware of optimization problems and available mathematical tools to solve them. This course is conducted by faculty members from various disciplines.

**Content of the course:** Introduction to optimization problems, linear programming problems, simplex method, interior point method, maximal flow, max flow – min cut theorem, local search methods, Meta heuristic algorithms such as genetic algorithms, simulated annealing, tabu search, ant colony optimization algorithm, and particle swarm optimization algorithm. Artificial neural networks, supervised and unsupervised learning, back propagation neural networks and introduction to fuzzy logic.

Text and References:

1. Christos H. Papadimitriou, Ken Steiglitz, Combinatorial optimization: algorithms and complexity, Dover publications, (ISBN 0486402584 )1998.
2. Hamdy A. Taha, "Operations Research" Prentice Hall, 2006
3. S. S. Rao, "Engineering optimization" Third Edition, Wiley-IEEE, 1996
4. Kishan Mehrotra, Chilukuri K. Mohan and Sanjay Ranka, Elements of artificial neural networks, MIT press, (ISBN 0262133288) 1996.
5. George J. Klir, Yuan Bo, Fuzzy sets and Fuzzy logic: Theory and applications, Prentice Hall, 1995.