

# RAJASTHAN TECHNICAL UNIVERSITY, KOTA

## Lecture Plan

Session:	2015-2016
Semester:	5 <sup>th</sup> Semester
Name of Faculty:	Dr. D. K. Sambariya
Department:	Electrical Engineering
Course Name and Number:	B. Tech. (EE)
Name of Subject (with code):	Optimization Technique
Batch Name/Discipline:	5EE / Electrical Engineering

Lecture Plan Details		
Lecture No.	Topic to be covered	Remark
L-1	Engineering application of Optimization	
L-2	Engineering application of Optimization in Electrical Engg	
L-3	Terminology in optimization	
L-4	Formulation of design problems as mathematical programming problem	
L-5	Classification of optimization problems	
L-6	Difference amongst the optimization methods	
L-7	Classical optimization	
L-8	Single-Variable Optimization, , Multivariable with no constraints	
L-9	Multivariable Optimization with No Constraints	
L-10	Multivariable Optimization with Equality Constraints	
L-11	Unconstrained minimization techniques	
L-12	Applications of Linear Programming	
L-13	Standard Form of a Linear Programming Problem	
L-14	Solution of a System of Linear Simultaneous Equations	
L-15	Penalty function techniques	
L-16	Lagrange multipliers	
L-17	Feasibility techniques	
L-18	Graphical method	
L-19	Simplex method	
L-20	Duality in linear programming (LP)	
L-21	Symmetric Primal–Dual Relations, General Primal–Dual Relations	
L-22	Primal–Dual Relations When the Primal Is in Standard Form	
L-23	Decomposition Principle, Unconstrained optimization	
L-24	One dimensional minimization, Unimodal Function	
L-25	Golden section	
L-26	Elimination, Unrestricted Search, Exhaustive Search	
L-27	Interval Halving Method, Quadratic and cubic	
L-28	Fibonacci, Comparison of Elimination Methods	

L-29	Interpolation, Quadratic Interpolation Method, Cubic Interpolation Method	
L-30	Direct search, Newton Method	
L-31	Quasi-Newton Method, Secant Method, Descent method	
L-32	Constrained optimization	
L-33	Direct and indirect, Random Search Methods, Grid Search Method	
L-34	Univariate Method, Gradient of a Function, Steepest Descent (Cauchy) Method, Optimization with calculus	
L-35	Khun-Tucker conditions.	
L-36	Newton's Method, Marquardt Method, Direct	
L-37	Complex Method,	
L-38	Complex	
L-39	Cutting plane	
L-40	Exterior penalty function methods for structural engineering problems	