Department of Civil Engineering

I M.Tech I SEM, OPTIMISATION IN STRUCTURAL DESIGN, 2016-17

LESSON PLAN G Prasanna Kumar

Period	Date	Topic	Unit No	Teaching Methodology	Cumulative Periods
5,6	22/08/2016	Introduction: Need and scope for optimization	1	C.R	2
5,6	29/08/2016	Historical development	1	C.R	4
5,6	01/09/2016	statements of optimization problems Objective function and its surface design variables	1	C.R	6
5,6	08/09/2016	constraints and constraint surface-	1	C.R	8
5,6	15/09/2016	Classification of optimization problems	1	C.R	10
5,6	19/09/2016	(various functions continuous, discontinuous and discrete) and	1	C.R	12
5,6	22/09/2016	function behavior (monotonic and unimodal)	1	C.R	14
5,6	26/09/2016	Classical optimization techniques: Differential calculus method	2	C.R	16
5,6	29/09/2016	multi variable optimization by method of constrained variation and	2	C.R	18
5,6	03/10/2016	Lagrange multipliers (generalized problem) Khun-Tucker conditions of optimality	2	C.R	20
5,6	06/10/2016	Fully stressed design	3	C.R	22
5,6	10/10/2016	optimality criterion based algorithms	3		24
5,6	13/10/2016	introduction, characteristics of fully stressed design theoretical basis, examples	3	C.R	26
5,6	24/10/2016	Non-Liner programming: Unconstrained minimization- Fibonacci method	4	C.R	28
5,6	27/10/2016	golden search, Quadratic and cubic interpolation methods for a one dimensional minimization	4	C.R	30
5,6	31/10/2016	univariate method,	4	C.R	32
5,6	03/11/2016	Powel's method, Newton's method	4	C.R	34
5,6	07/11/2016	and Davidon Fletcher Powell's method	4		36
5,6	10/11/2016	multivariable optimization	4		38
5,6	14/11/2016	Constrained minimization- Cutting plane method- Zoutendjik's method	4	C.R	40
5,6	17/11/2016	penalty function methods	4	C.R	42
5,6	21/11/2016	Linear programming: Definitions and theorems- Simplex method	5	C.R	44
5,6	24/11/2016	Duality in Linear programming	5	C.R	46

5,6	28/11/2016	Plastic analysis and Minimum weight design and rigid frame .	5	C.R	48
5,6	01/12/2016	Introduction to quadratic programming, and Design of beams	6	C.R	50
5,6	05/12/2016	Geometric programming	6	C.R	52
5,6	08/12/2016	Dynamic programming.	6	C.R	54
5,6	15/12/2016	Design of beams, frames using dynamic programming techniques.	6	C.R	56

NOTE: C.R- Class Room Teaching (Black board, PPT)

Signature