CE/BOS/ CE E65/0210

K L UNIVERSITY
WATER RESOURCES SYSTEMS ANALYSIS (09 - CE E65)

SYLLABUS

L	T	P	Cr
3	0	0	3

UNIT – 1

INTRODUCTION: concepts of systems analysis, definition, systems approach to water resources planning and management, role of optimization models, objective function and constraints, types of optimization techniques.

UNIT – II

LINEAR PROGRAMMING –I: Formulation linear programming models, graphical method, simplex method, application of Linear programming in water resources.

LINEAR PROGRAMMING – II: Revised simplex method, duality in linear programming, sensitivity and past optimality analysis.

UNIT – III

Dynamics programming: Belman's of principles of optimality forward and backward recursive dynamic programming, case of dimensionality, application of dynamic for resource allocation.

UNIT – IV

Non-linear optimatization techniques: Clerical of method optimization, Kuch-Tucleer, gradential based research techniques for simple unconstrained optimization. Simulation: application of simulation techniques in water resources.

UNIT – V

Water –resources economics: Principles of Economics analysis, benefit cost analysis socio economic intuitional and pricing of water resources. Water resources management: Planning of reservoir system, optimal operation of single reservoir system, allocation of water resources, optimal cropping pattern, conjunctive use of surface and sub-surface water resources.

TEXT BOOKS:

1. Water Resources System Analysis – Vedula & Mujumdar – Tata Mc.Graw Hill Company Ltd. 2005.
2. Water Resources Economics - James & Lee. Oxford Publishers 2005.

REFERENCE BOOKS:

1. Optimal design of water distribution networks P.R.Bhave, Narosa Publishing house 2003.