

CE 818 SIMULATION MODELLING IN WATER RESOURCES

Unit-I

Systems Engineering – Analysis - Design – synthesis – Models- types of models - applications

Unit-II

Role of optimization models - Deterministic models/Linear programming, Dynamic programming, Separable and Nonlinear programming models.

Unit-III

Formulation of objective functions and constraints for environmental engineering planning and design.

Unit-IV

Probabilistic models - fuzzy models - Simulation models, Modern tools - Expert systems - Neural networks - Genetic Algorithm

Unit-V

Application of Simulation Modelling in Geospatial applications-Case studies.

References:

1. Rich L.G., Environmental Systems Engineering, McGraw Hill, 1973.
2. Thoman R.V., Systems Analysis & water Quality control, McGraw Hill, 1978.
3. Vedula S, Water resources Systems Modelling Techniques and Analysis, McGraw Hill, 2005.
4. Thomas Lillesand, Ralph W. Kiefer, Remote Sensing and Image Interpretation, 7th Edition, Wiley 2015.