Course Name:

Water Resource Systems Analysis I

Course Number: 20-647	**Credit:** 3
Program: Graduate	**Course Type:** General Required
Prerequisite: -	**Corequisite:** -

Course Description (Objectives):

The goal of this course is to introduce the concepts, principles, and methods for analyzing and managing water resource systems. It covers linear and dynamic programming, watershed modeling, and optimal utilization of water resources under various uncertainty conditions.

Course Content (outline):

- Chapter 1: Concepts and Principles of Water Resources Management
- Chapter 2: Linear Programming (LP)
- Chapter 3: Nonlinear planning
- Chapter 4: Dynamic Planning (DP)
- Chapter 5: River Basin Modeling
- Chapter 6: Specific models for optimization and simulation of dam reservoir
- Chapter 7: Project

References:

- "Operations Research, Principles and Practices", A. Ravindran et al., John Wiley and Sons.
- "Water Resource Systems Planning and Analysis", D.P Loucks et al., Prentice-Hall Inc., 1981.
- Water Resources Systems Planning and Management: An Introduction to Methods, Models and Applications (with contributions from Jery R. Stedinger and Jozef P.M. Dijkma)", D.P Loucks & E. van Beek, UNESCO Publishing, 2006.
- "Managing Water Resources: Methods and Tools for a Systems Approach", S.P. Simonovic, UNESCO Publishing, 2009.
- "Hydrosystems Engineering and Management", L.W. Mays & Y.K. Tung, McGraw-Hill., Inc., 1992.
- "Handouts and Journal Papers"