

Course Name:

Water Resources Quality Management

Course Number:

20646

Credit:

3

Course Content (outline):

- Familiarity with the concept of water quality management, qualitative indicators and beneficial use of water resources
- Reactions, reaction rate and hydraulic performance of the reactors
- Finding the process of salinity, the relationship between quality and quantity
- Hydrodynamic of pollution dispersion
- Variation of dissolved oxygen (DO) in the river
- Modeling of heat changes in the river
- Hydrodynamic of the reservoirs
- Modeling the thermal stratification in reservoirs and lakes
- Variation of dissolved oxygen (DO)
- Eutrophication
- Modeling and qualitative models in basin scale
- Determination of the environmental needs of rivers and wetlands
- Application of satellite images in determination of water quality

References:

- “Modeling and management of water resources quality”, M. Tajrish, Sharif UP. 1387.
- “Course notes (Pamphlet)”.
- Selected papers from national and international journals (ewrc. Sharif.edu/course).
- “Water Quality Management”, P.A. Krenkel & V. Novotny, Academic Press, 1980.
- “Models for Water Quality Management”, A.S. Biswas, McGraw-Hill Book, 1981.
- “Mathematical Modeling of Water Quality: Streams, Lakes, and Reservoirs” G.T. Orlob, John Wiley & Son, 1983.
- “An Introduction to Water Quality Modelling”, A. James, A Wiley Interscience, 1984.
- “Water Quality Assessments”, D. Chapman, ITP Publishing Co., 1992.
- “Surface Water Quality Modelling” H., Chapra, McGraw-Hill Book Co., 1998.
- “Lake and River Ecosystems”, R.G. Wetzel Limnology, 3rd Ed., Academic Press, 2001.