

# GUJARAT TECHNOLOGICAL UNIVERSITY

## (Civil) in Water Resources Management

M.E. Semester: IV

Subject Code: 741201

Subject Name: **Hydrological Modeling**

| Sr. No. | Course Content   |
|---------|--|
| 1.      | Modelling for Surface and groundwater systems:   |
| 2.      | Definitions of Modeling and Simulation, Terminology & Components, History, Applications, Simulation packages ARS-SWAT, HEC-HMS, MODFLOW etc., Selection process, Statistical models, Input Modeling, Collecting Data, Identifying Distribution, Histograms, Goodness-of-Fit, Calibration and Validation of Simulation Models, Output Analysis, Measures of Performance, visualization. |

### **Tutorial/ lab Project work:**

1. Data processing
2. Input data and development of model
3. Calibration and validation of the model
4. Output and visualization

### **Reference Book:**

1. GIS and environmental modeling by Keith C. Clarke, Bradley O. Parks, Michael P. Crane -PHI
2. Integrated Watershed Management through Simulation Modeling by Lodha P P and Gosain A K – Lambert Academic Publishing
3. Introduction to Hydrology by Warren Viessman, Jr and Gary L Lewis - Pearson education