***7CE160 Floods and Droughts***

**L-T-P-Cr: 3-0-0-3**

**Theory:**

**1.** FLOODS: Introduction, Rational Method, Empirical Formulae, Unit Hydrograph Method, Flood Frequency Studies, Gumbel’s Method, Log Pearson Type III Distribution, Partial Duration Series, Regional Flood Frequency Analysis, Limitation of Frequency Studies, Design Flood, Design Strom **2 Lectures**

**2.** FLOOD ROUTING: Introduction, Basic Equation, Hydrologic Storage Routing, Attenuation, Hydrologic Channel Routing, Hydraulic Method of Flood Routing, Routing in Conceptual Hydrograph Development, Clark’s Method of IUH, Flood Control, Flood Forecasting, Flood Control in India with Special Reference to Bihar **15 Lectures**

**3.** FLOOD MANAGEMENT TECHNIQUES: Introduction Flood Control and Management, Catchment Area Treatment, Structural Measures, Non-structural Measures **5 Lectures**

**4.** DROUGHTS: Climatic Regions: Arid Region, Semi-Arid Region, Humid Region; Drought: Drought and Rainfall, Drought and Classification, Drought, Rainfall and Temperature; Effect of Draught: Effects on Ground Water, Effects on Water Quality, Effects on Socio Economic

Status; Drought Control: Supply Oriented Drought Control Measures, Demand Oriented, Drought, Control Measures

**Text Books:**

1. Engineering Hydrology by Muteraja

2. Engineering Hydrology by Subramanim

3. Watershed Hydrology by R. Suresh, Standrad