

Course Contents:

Introduction: Hydrologic cycle, water budget, world water quantities. Precipitation and Abstractions: Forms of precipitation, data analysis, rain gauge networks; Infiltration process, infiltration indices and Horton's equation; Evaporation and Evapo-transpiration Pan evaporation, empirical equations for estimating evaporation and evapo-transpiration; Transpiration, Runoff and Hydrographs: Rainfall runoff relations, time area concept, flow duration curve, mass curve, flow hydrograph, Unit Hydrograph (UH), its analysis, S-curve hydrograph; Floods and Routing: Concepts of return period, flood frequency analysis, Gumbel's and Log Pearson Type I II distributions, Rational method, risk, reliability, and safety factor; Hydrologic storage routing Groundwater Hydrology: Types of aquifers and properties, Darcy's law, steady flow in a confined and unconfined aquifer (without recharge), steady flow to a well