

NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Surface Water Hydrology

Subject Co-ordinator - Prof. Rajib Maity

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Hydrologic Cycle and its Different Components
- Lecture 3 - Hydrological System Concept
- Lecture 4 - Surface Water Resources of India
- Lecture 5 - Hydrology and Climate Change
- Lecture 6 - Different Forms of Precipitation and Indian Monsoon
- Lecture 7 - Measurement and Analysis of Precipitation
- Lecture 8 - Precipitation Data Quality and Presentation
- Lecture 9 - Areal Precipitation and Frequency Analysis
- Lecture 10 - Analysis of Precipitation: IDF and PMP
- Lecture 11 - Introduction to Evaporation and Evaporimeters
- Lecture 12 - Estimation of Evaporation and Control Measures
- Lecture 13 - Evapotranspiration
- Lecture 14 - Initial Loss and Infiltration Process
- Lecture 15 - Modelling of Infiltration Capacity
- Lecture 16 - Infiltration Indices
- Lecture 17 - Measurement of Flow Velocity
- Lecture 18 - Area-Velocity and Moving-Boat Methods
- Lecture 19 - Dilution Technique, Electromagnetic and Ultrasonic Methods
- Lecture 20 - Indirect Streamflow Measurement
- Lecture 21 - Stage-Discharge Relationship and Rating Curve
- Lecture 22 - Introduction and Catchment Characteristics
- Lecture 23 - Estimation of Runoff Volume: Empirical Models
- Lecture 24 - Estimation of Runoff Volume: Conceptual Models
- Lecture 25 - Flow Characteristic Curves and Estimation of Reservoir Storage
- Lecture 26 - Concept of Droughts and Environmental Flows
- Lecture 27 - Basics of Hydrographs
- Lecture 28 - Base Flow Separation, DRH and ERH
- Lecture 29 - Introduction to Unit Hydrographs

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- Lecture 30 - Unit Hydrograph to Direct Runoff Hydrograph
- Lecture 31 - Derivation of Unit Hydrograph
- Lecture 32 - Unit Hydrograph of Different Durations: Method of Superposition
- Lecture 33 - Unit Hydrograph of Different Durations: Method of S-Curve
- Lecture 34 - More on Unit Hydrographs
- Lecture 35 - Synthetic Unit Hydrograph
- Lecture 36 - Instantaneous Unit Hydrograph
- Lecture 37 - Introduction to Floods and Rational Method
- Lecture 38 - Flood Peak Discharge and Catchment Characteristics
- Lecture 39 - Estimation of Peak Flood Flow
- Lecture 40 - Flood Control and its Status in India
- Lecture 41 - Introduction to Flood Routing
- Lecture 42 - Reservoir Routing: Modified Puls's Method
- Lecture 43 - Reservoir Routing: Goodrich Method and Runge-Kutta Method
- Lecture 44 - Channel Routing: Parameters of Muskingum Method
- Lecture 45 - Channel Routing: Muskingum Method and Hydraulic Flood Routing
- Lecture 46 - Concept of Routing in IUH Development and Clark's Method
- Lecture 47 - Nash's Conceptual Model
- Lecture 48 - Basic Concepts of Probability and Statistics
- Lecture 49 - Types of Data Series and Concept of Return Period
- Lecture 50 - Introduction to Frequency Analysis
- Lecture 51 - Parametric Methods of Frequency Analysis
- Lecture 52 - Frequency Analysis with Extreme Value Type-I Distribution
- Lecture 53 - Confidence Interval and Standard Error in the Frequency Estimates
- Lecture 54 - Various Issues behind Frequency Analysis
- Lecture 55 - Basics of Hydrologic Design
- Lecture 56 - Risk Analysis to Determine Return Period
- Lecture 57 - Hydro-economic Analysis to Determine Return Period
- Lecture 58 - Uncertainty in Hydrologic Analysis
- Lecture 59 - Estimated Limiting Storm and Design Flood
- Lecture 60 - Design Storm
- Lecture 61 - Hydrologic Design of Reservoirs: Introduction and Determination of Storage Capacity
- Lecture 62 - Determination of Storage Capacity and Models in Reservoir Design