

# AMCE13 RIVER ENGINEERING

## UNIT-1 RUN OFF

- 1.1 Introduction, Hydrograph, Runoff Characteristics of Streams, Yield (Annual Runoff Volume),
- 1.2 Flow-Duration Curve, Flow-Mass Curve, Sequent Peak Algorithm, Droughts, Surface Water Resources Of India

## UNIT-2 STREAM FLOW MEASUREMENT

- 2.1 Introduction, Measurement Of Stage , Measurement Of Velocity, Dilution Technique Of Streamflow Measurement,
- 2.2 Electromagnetic Method, Ultrasonic Method, Stage-Discharge Relationship, Extrapolation Of Rating Curve, Hydrometric Stations

## UNIT-3 FLOODS

- 3.1 Introduction, Rational Method, Empirical Formulae, Unit Hydrograph Method, Flood-Frequency Studies,
- 3.2 Gumbel's Method, Log-Pearson Type iii Distribution, Partial Duration Series, Regional Flood Frequency Analysis,
- 3.3 Limitations Of Frequency Studies, Design Flood, Design Storm, Risk, Reliability And Safety Factor

## UNIT-4 FLOOD ROUTING

- 4.1 Introduction, Basic Equations, Hydrologic Storage Routing, Attenuation, Hydrologic Channel Routing, Hydraulic Method Of Flood Routing,
- 4.2 Routing In Conceptual Hydrograph Development , Clark's Method For Iuh,
- 4.3 Nash's Conceptual Model, Flood Control, Flood Forecasting, Flood Control In India

### Reference Books:

1. River Engineering by K D Gupta
2. Applied Fluvial Geomorphology for River Engineering and Management by Malcolm D Newson and Richard D Hey
3. Swiss Competences in River Engineering and Restoration by Anton J Schleiss and Jürg Speerli.