
Departmental Seminar

Seminar Title : Conference Return Seminar: Assessment of Turbulence Parameters in Natural River Bed Under Low Flow Conditions
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Venue : CE Seminar Hall
Date and Time : 30 Dec 2024 (1100 am)
Abstract : Turbulence plays a critical role in natural river systems, influencing sediment transport, channel morphology, and ecological habitats. In sediment bed open channel flows, turbulence arises from interactions between water flow and riverbed features like sediments, rocks, and vegetation, generating vortices and eddies. These dynamics affect erosion, deposition, and sediment re-suspension, shaping channel bed morphology and stability. Laboratory experiments conducted in an unsymmetrical compound channel at NITR used a SonTek 16MHz Acoustic Doppler Velocimeter (ADV) to measure velocity fluctuations, estimating average velocity and turbulence parameters such as Reynolds shear stress, turbulence intensities, and turbulence kinetic energy. The study revealed that turbulence parameters decrease longitudinally due to downstream fining and vary transversely due to wall shear stress and secondary currents near the main channel-floodplain junction. These findings enhance the understanding of turbulence's role in sediment transport and channel morphology, providing valuable insights for river management and restoration strategies.