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Departmental Seminar

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Seminar Title : Conference Return Seminar: Exploring Velocity Dynamics in Unsteady Open Channel Flow: Hydrograph Influence on Longitudinal Profiles and Depth- Averaged Velocities

Speaker : Prof. Kishanjit Kumar Khatua

Supervisor : M. Gattu

Venue : Civil Engineering Seminar Hall

Date and Time : 23 Sep 2024 (10:00 A.M.)

Abstract : Experimental investigations were conducted on an open channel under unsteady flow conditions to examine the variation of longitudinal velocity profiles compared to steady flow. Two, single repeated hydrographs were allowed to pass over the channel to acquire the fundamental flow variables after ensuring data stability. Velocity profiles were analyzed at the test cross-section. The two hydrographs, one resembling a lower unsteady parameter and another for a higher unsteady parameter were studied. Study is extended for both rising and falling limb cases of each of the hydrographs. Comparative analysis of the unsteady flow results is also performed with steady flow condition which revealed that steady flow velocity profiles fell between the rising and falling limb profiles for any of the corresponding flow depths. Depth-averaged velocities (DAV) were also calculated and compared, which provided insights into the differences between two unsteady flow depths and with that in the steady flow conditions.