

BCE-043	River Engineering	3L:0T:0P	3 credits
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Pre-requisites: Water resource Engineering

Course Objectives:

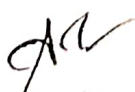
CO1	An ability to identify, formulate, and solve engineering problems.
CO2	An ability to effectively communicate in writing and speaking.

River Engineering:

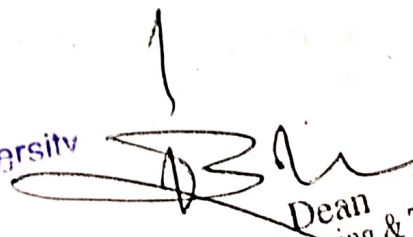
Knowledge about river behavior is essential for practicing hydraulic and water resources engineers. River Morphology (Bars; Bends and Meanders, Thalweg; Braiding; Bifurcations etc.); Sediment Transport Mechanics (Bed forms, Bed Load transport, Transport of suspended sediment, Critical Shear stress, Sediment Transport Equations); Aggradation and Degradation; Local Scour at Bridge Piers and other Hydraulic Structures. Measurements in Rivers (Stage measurements, Channel geometry, Discharge, Sediment samplers and suspended and bed load measurement), Physical river Models (fixed and movable bed models; sectional models, distorted Models), Mathematical models for aggradations, degradation and local scour, River Protection and Training Works (Revetments, Dikes, Gabions, Spurs, Bank Protective measures and Bed control structures), Design of river training and flood protection structures, Diversion and Cofferdams; River regulations systems; Dredging and Disposal, River restoration

Course Outcomes: After the completion of the course the student will be able to:

CO1	Make observations of and investigate hypotheses about river processes and the impacts of river engineering alternatives
CO2	Discuss regional and global river systems and management.
CO3	Additional required supplies and field trip information.


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