



RIVER ENGINEERING

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INTENDED AUDIENCE : Undergraduate Students in Different Engineering Colleges

COURSE OUTLINE :

In the last few decades, water demand in the globe has increased in many folds. Rivers, one of the major source of water demand for domestic, agricultural and industrial uses, are often not utilised properly for long term sustainability. Therefore, it is a challenging task for engineers for understanding water, sediment and energy transport processes in rivers in both spatial and temporal scales. This course will address how to understand and model hydro-fluvial processes and designing of advanced river intervention structures.

ABOUT INSTRUCTOR :

Prof. Subashisa Dutta, having more than 15 years experience of teaching in IIT Guwahati for both undergraduate and postgraduate students. The Fluid Mechanics course in undergraduate level was instructed five times by the Subject Matter Expert. Besides this, he developed a NPTEL web course on Fluid Mechanics for undergraduate students. In the research and consultancies work of mathematical modelling of different rivers like Brahmaputra, he has been exposed to real life challenging works. In this course, some of the real life problems in Indian rivers will be discussed..

COURSE PLAN :

Week 1: Physical Properties and Equations

Week 2: Steady Flow in Rivers

Week 3: Unsteady Flow in Rivers

Week 4: River Equilibrium

Week 5: River Dynamics

Week 6: River Stabilization and River Training work

Week 7: River Engineering

Week 8: River Modelling