CE 332: HYDRAULIC AND HYDRAULIC STRUCTURES (3-0-0: 3)

Introduction
Definition and classification of open channel flows, velocity distribution, energy coefficient and momentum coefficient, pressure distribution in different types of flows.

Critical flow
Conservation of mass, conservation of momentum and conservation of energy, specific energy, specific force, introduction to critical flow, computation of critical flow and application.

Uniform flow
Introduction to uniform flow, flow resistance formulas, roughness coefficient, computation of uniform flow, hydraulically most efficient channel sections.

Gradually varied flow
Introduction to gradually varied flow, governing equation, classification and characteristics of water-surface profiles, sketching of water-surface profiles, computation of gradually varied flow: direct-step method and standard step method, graphical methods.

Rapidly varied flow
Introduction to rapidly varied flow, hydraulic jump, classification and practical application of hydraulic jump, ratio of sequent depths, height and length of jump, energy loss and jump location.

Channel design
Erodible and non-erodible channels, their design principles and various design methods.

Hydraulic structures
Introduction to hydraulic structures, different types of hydraulic structures, dam engineering, classification of dams, design of spillway, cross drainage structures.

Text Books
1. M. H. Chaudhry, “Open Channel Flow”, Prentice Hall
2. K.G., RangaRaju, “Flow Through Open Channels”, Tata McGraw Hill

References
1. F. M. Henderson, “Open Channel Flow”, Tata McGraw Hill
2. V.T. Chow, “Open Channel Hydraulics”, Tata McGraw Hill