1. Record Nr. UNINA9910464293103321

Autore	Singh V. P (Vijay P.)
Titolo	Entropy theory in hydraulic engineering : an introduction / / Vijay P. Singh
Pubbl/distr/stampa	Reston, Virginia : , : American Society of Civil Engineers, , 2014 ©2014
ISBN	1-68015-798-1 0-7844-7825-2
Descrizione fisica	1 online resource (xv, 785 p.) : ill
Disciplina	627/.042
Soggetti	Hydrodynamics Hydraulics - Mathematics Entropy Electronic books.
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references at the end of each chapters and index.
Nota di contenuto	""Contents""; ""Preface""; ""Chapter 1 Entropy Theory""; ""1.1 Overview of This Volume""; ""1.2 Entropy Concept""; ""1.3 Entropy Theory""; ""1.4 Types of Entropy""; ""1.5 Application of Entropy Theory to Hydraulic Engineering Problems""; ""1.6 Hypothesis on the Cumulative Distribution Function""; ""1.7 Methodology for Application of Entropy Theory""; ""Appendix 1.1""; ""Questions""; ""References""; ""Additional Reading""; ""Part 1: Velocity Distributions""; ""Chapter 2 One-Dimensional Velocity Distributions""; ""2.1 Preliminaries""; ""2.2 Derivation of One-Dimensional Velocity Distributions"" ""2.3 One-Dimensional Velocity Distribution with No Physical Constraint""""2.4 One-Dimensional Velocity Distribution with One Physical Constraint""; ""2.5 Testing of One-Physical-Constraint Velocity Distribution""; ""2.6 One-Dimensional Velocity Distribution with Two Physical Constraints""; ""2.7 One-Dimensional Velocity Distribution with Three Physical Constraints""; ""Appendix 2.1: Method of Lagrange Multipliers""; ""Questions""; ""References""; ""Additional Reading""; ""Chapter 3 Two-Dimensional Velocity Distributions""; ""3.1 Derivation

of Velocity Distributions""

""3.2 Construction of Isovels and Relation between (x, y) Coordinates and (r, s) Coordinates"""""3.3 Estimation of Parameters of Velocity Distribution""; ""3.4 Maximum and Mean Velocities""; ""3.5 Comparison of Mean Velocity Estimates""; ""3.6 Alternative Method for Estimation of the Cross-Sectional Area Mean Velocity for New River Sites""; ""3.7 Derivation of 2-D Velocity Distribution Using a Mathematically Sound Coordinate System""; ""3.8 Trapezoidal Domain""; ""Appendix 3.1""; ""Appendix 3.2""; ""Questions""; ""References""; ""Additional Reading""

""Chapter 4 Power Law and Logarithmic Velocity Distributions"""""4.1 Preliminaries""; ""4.2 One-Dimensional Power Law Velocity Distribution""; ""4.3 One-Dimensional Prandtla€?von Karman Universal Velocity Distribution""; ""4.4 Two-Dimensional Power Law Velocity Distribution""; ""4.5 Two-Dimensional Prandtla€?von Karman Velocity Distribution""; ""4.6 Two-Dimensional Representation of Velocity Using a General Framework""; ""Questions""; ""References""; ""Additional Reading""; ""Chapter 5 Applications of Velocity Distributions""; ""5.1 Sampling Velocity Measurements""

""5.2 Use of k[sub(1)]a€?Entropy Relation for Characterizing Open-Channel Flows"""""5.3 Energy and Momentum Coefficients""; ""5.4 Shear Stress Distribution""; ""5.5 Relation between Maximum Velocity, Darcya €?s Friction Factor, and Entropy Number""; ""5.6 Discharge Measurements""; ""5.7 Determination of Discharge at Remote Locations""; ""5.8 Determination of Flow Depth Distribution""; ""5.9 Determination of Entropy Parameter from Hydraulic and Geometric Characteristics""; ""Questions""; ""References""; ""Additional Reading""; ""Chapter 6 Velocity Distribution in Pipe Flow""

""6.1 Derivation of Velocity Distribution""