

## Urban Hydrology Hydraulics And Stormwater Quality Engineering Applications And Computer Modeling

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His publication record includes Urban Stormwater Hydrology (Wiley), several chapters in design handbooks, and numerous articles in scholarly journals. ROBERT J. HOUGHTALEN, PhD, is Professor and Head of the Civil Engineering Department at the Rose-Hulman Institute of Technology in Terre Haute, Indiana. During his thirty years of experience in water resources, his publishing credits include Fundamentals of Hydraulic Engineering Systems, Third Edition (with Ned H. C. Hwang) and the Federal ...

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urban catchment – to derive runoff required for the design of appropriate stormwater drainage system. • Event-based hydrologic modeling is carried out to estimate flows due to a given storm event – useful for deciding design flows of system components • Continuous hydrologic modeling is carried out to derive long-term continuous flows

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Latest developments of urban hydrology and hydraulic design procedures for storm water management. Drainage planning is an approach that integrates both local and regional efforts to identify drainage conveyance and storage facilities based on hydrologic optimization and cost minimization individually and collectively. In general, the first six chapters cover the hydrologic procedures for ...

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A practical introduction on today's challenge of controlling and managing the water resources used by and affected by cities and urbanized communities. The book offers an integrated engineering approach, covering the spectrum of urban watershed management, urban hydraulic systems, and overall stormwater management. Each chapter concludes with helpful problems. Solutions Manual available to qualified professors and instructors upon request. Introduces the reader to two popular, non-proprietary computer-modeling pro-grams: HEC-HMS (U.S. Army Corps of Engineers) and SWMM (U.S EPA).

Latest developments of urban hydrology and hydraulic design procedures for storm water management. Drainage planning is an approach that integrates both local and regional efforts to identify drainage conveyance and storage facilities based on hydrologic optimization and cost minimization individually and collectively. In general, the first six chapters cover the hydrologic procedures for rainfall and runoff predictions, and the next 12 chapters focus on hydraulic designs of urban channel, culvert, street inlet, sewer drain, detention basin, retention basin, infiltration basin, low impact designs, and storm water modeling techniques by various routing methods. Hydrology analyses are lengthy in calculation and repetitive in procedure. As a result, Excel Spreadsheet is the most useful and handy tool for hydraulic and hydrologic designs. This book includes 18 sets of spreadsheets developed for 18 subjects. With these spreadsheets, it is easy for the reader to conduct sensitivity tests. Many of the design methods documented in this book have been adopted as the recommended design procedure by Denver, Las Vegas, and Sacramento metropolitan areas in the United States. Based on these methods, there are many design computer models that have been developed and supported by the Denver metro governments for stormwater design purposes.

Effective urban drainage to manage stormwater and control flooding depends on good engineering, especially when an environmentally sustainable approach is being applied. This new text focuses on green methods and modelling techniques. It covers the principles of hydrology and drainage, low-impact-development (LID) designs, computer modelling techniques, the evaluation of existing systems, and planning for both new development and urban renewal. It outlines design procedures using examples, spreadsheet models, photos, and real-world design examples. Unlike other books, which focus on extreme events, this book covers hydrologic designs for both extreme and frequent events, and reflects the latest revolution in stormwater LID management, and takes a quantitative as well as a qualitative approach. PowerPoint® presentations and Excel® computer models are provided to follow and build on the exercises in the book. It is written especially for students on urban watershed courses, and also for those studying urban planning, landscaping, water resources, hydrology and hydraulics.

Comprehensive guide and reference to city stormwater runoff and streamflow management.

Prepared by the Task Committee of the Urban Water Resources Research Council of ASCE. Copublished by ASCE and the Water Environment Federation. Design and Construction of Urban Stormwater Management Systems presents a comprehensive examination of the issues involved in engineering urban stormwater systems. This Manual, which updates relevant portions of Design and Construction of Sanitary and Storm Sewers, MOP 37, reflects the many changes taking place in the field, such as the use of microcomputers and the need to control the quality of runoff as well as the quantity. Chapters are prepared by authors with experience and expertise in the particular subject

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area. The Manual aids the practicing engineer by presenting a brief summary of currently accepted procedures relating to the following areas: financial services; regulations; surveys and investigations; design concepts and master planning; hydrology and water quality; storm drainage hydraulics; and computer modeling.

In response to the increasing urbanization, advances in the science of urban hydrology have improved urban water system management, creating more livable cities in which public safety and health, as well as the environment, are protected. The ultimate goal of urban water management is to mimic the hydrological cycle prior to urbanization. On top of urbanization, climate change, which has been demonstrated to alter the hydrological cycle in all respects, has introduced additional challenges to managing urban water systems. To mitigate and adapt to urbanization under a changing climate, understanding key hydrologic components should expand to include complex issues brought forth by climate change. Thus, effective and efficient measures can be formulated. This Special Issue of Water presents a variety of research papers that span a range of spatial and temporal scales of relevance in different societies' efforts in adapting to the eminent changes in climate and the continuous changes in the landscape. From mitigating water quality in permeable pavements and bioretention swales to understanding changes in groundwater recharge in large regions, this Special Issue examines the state-of-the-art in sustainable urban design for adaptation and resiliency.

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Open Channel Hydraulics, Second Edition provides extensive coverage of open channel design, with comprehensive discussions on fundamental equations and their application to open channel hydraulics. The book includes practical formulas to compute flow rates or discharge, depths and other relevant quantities in open channel hydraulics. In addition, it also explains how mutual interaction of interconnected channels can affect the channel design. With coverage of the theoretical background, practical guidance to the design of open channels and other hydraulic structures, advanced topics, the latest research in the field, and real-world applications, this new edition offers an unparalleled user-friendly study reference. Introduces and explains all the main topics on open channel flows using numerous worked examples to illustrate key points Features extensive coverage of bridge hydraulics and scour - important topics civil engineers need to know as aging bridges are a major concern Includes Malcherek's momentum approach where applicable

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