

Irrigation Engineering Sk Garg

River stage or flow rates are required for the design and evaluation of hydraulic structures. Most river reaches are ungauged and a methodology is needed to estimate the stages, or rates of flow, at specific locations in streams where no measurements are available. Flood routing techniques are utilised to estimate the stages, or rates of flow, in order to predict flood wave propagation along river reaches. Models can be developed for gauged catchments and their parameters related to physical characteristics such as slope, reach width, reach length so that the approach can be applied to ungauged catchments in the region. The objective of this study is to assess Muskingum-based methods for flow routing in ungauged river reaches, both with and without lateral inflows. Using observed data, the model parameters were calibrated to assess performance of the Muskingum flood routing procedures and the Muskingum-Cunge method was then assessed using catchment derived parameters for use in ungauged river reaches. The Muskingum parameters were derived from empirically estimated variables and variables estimated from assumed river cross-sections within the selected river reaches used. Three sub-catchments in the Thukela catchment in KwaZulu-Natal, South Africa were selected for analyses, with river lengths of 4, 21 and 54 km. The slopes of the river reaches and reach lengths were derived from a digital elevation model. Manning roughness coefficients were estimated from field observations. Flow variables such as velocity, hydraulic radius, wetted perimeters, flow depth and top flow width were determined from empirical equations and cross-sections of the selected rivers. Lateral inflows to long river reaches were estimated from the Saint-Venant equation. Observed events were extracted for each sub-catchment to assess the Muskingum-Cunge parameter estimation method and Three-parameter Muskingum method. The extracted events were further analysed using empirically estimated flow variables. The performances of the methods were evaluated by comparing both graphically and statistically the simulated and observed hydrographs. Sensitivity analyses were undertaken using three selected events and a 50% variation in selected input variables was used to identify sensitive variables. The performance of the calibrated Muskingum-Cunge flood routing method using observed hydrographs displayed acceptable results. Therefore, the Muskingum-Cunge flood routing method was applied in ungauged catchments, with variables estimated empirically. The results obtained shows that the computed outflow hydrographs generated using the Muskingum-Cunge method, with the empirically estimated variables and variables estimated from cross-sections of the selected rivers resulted in reasonably accurate computed outflow hydrographs with respect to peak discharge, timing of peak flow and volume. From this study, it is concluded that the Muskingum-Cunge method can be applied to route floods in ungauged catchments in the Thukela catchment and it is postulated that the method can be used to route floods in other ungauged rivers in South Africa.

The objective is to provide the latest developments in the area of soft computing. These are the cutting edge technologies that have immense application in various fields. All the papers will undergo the peer review process to maintain the quality of work.

This book presents the proceedings of SympoSIMM 2020, the 3rd edition of the Symposium on Intelligent Manufacturing and Mechatronics. Focusing on "Strengthening Innovations Towards Industry 4.0", the book presents studies on the details of Industry 4.0's current trends. Divided into five parts covering various areas of manufacturing engineering and mechatronics stream, namely, artificial intelligence, instrumentation and controls, intelligent manufacturing, modelling and simulation, and robotics, the book will be a valuable resource for readers wishing to embrace the new era of Industry 4.0.

These two volumes, LNCS 7076 and LNCS 7077, constitute the refereed proceedings of the Second International Conference on Swarm, Evolutionary, and Memetic Computing, SEMCCO 2011, held in Visakhapatnam, India, in December 2011. The 124 revised full papers presented in both volumes were carefully reviewed and selected from 422 submissions. The papers explore new application areas, feature new bio-inspired algorithms for solving specific hard optimization problems, and review the latest progresses in the cutting-edge research with swarm, evolutionary, and memetic computing in both theoretical and practical aspects.

????:Industrial water pollution control

Including Dams Engineering, Hydrology and Fluid Power Engineering. For the student of B.E./B.Tech. Civil Engg., Institution of Engineers (India) U.P.S.C. Exam & Practising Engineers.

This proceedings volume contains selected papers presented at the 2014 International Conference on Informatics, Networking and Intelligent Computing, held in Shenzhen, China. Contributions cover the latest developments and advances in the field of Informatics, Networking and Intelligent Computing.

With reference to India.

The second volume of this book is a compilation of the high-quality papers from the International Conference on Emerging Trends in Water Resources and Environmental Engineering (ETWREE 2017). Written by researchers and academicians from prestigious institutes across India, the contributions present various scenarios and discuss the challenges of climate change and its impact on the environment, water resources and industrial and socio-economic developments. The book is a valuable resource for scientists, faculties, policymakers, and stakeholders working in the field of climate and environment management to address the current global environmental challenges.

This book comprises selected proceedings of the International Conference on Recent Advancements in Civil Engineering and Infrastructural Developments (ICRACEID 2019). The contents are broadly divided into five areas (i) smart transportation with urban planning, (ii) clean energy and environment, (iii) water distribution and waste management, (iv) smart materials and structures, and (v) disaster management. The book aims to provide solutions to global challenges using innovative and emerging technologies covering various fields of civil engineering. The major topics covered include urban planning, transportation, water distribution, waste management, disaster management, environmental pollution and control, environmental impact

assessment, application of GIS and remote sensing, and structural analysis and design. Given the range of topics discussed, the book will be beneficial for students, researchers as well as industry professionals.

"Water harvesting is a critical issue in India given the existing scarcity and water quality problems experienced practically all over the country. The pattern of endowment of water resources and the long term predictions of deficits on per capita availability in different rainfall zones point to the need to create new resources. The current publication by a well known expert in the field, is the first comprehensive treatise on the subject of water harvesting. It deals with traditional practices of rain and surface water harvesting as well as more recent ones like check dams. It describes in detail, the methods of analysis of hydrological data that are useful in designing these structures. The book presents the scientific basis, perspective and technical information required for water harvesting practices. The author analyses case histories of community water harvesting as practised in six areas in India. Innovative techniques like fog drip, artificial glaciers and adaptations to hilly regions and storage on sea surfaces are discussed. The author also suggests a common strategy for sustainable supply of potable water and changes in current water management practices through modifications in the National Water Policy. This book will be of interest and immense practical value to scientists, NGOs, government officials and community users. (Published in association with Centre for Environment Education, Ahmedabad)"

This two-volume set constitutes the refereed post-conference proceedings of the 8th International Conference on Advancement of Science and Technology, ICAST 2020, which took place in Bahir Dar, Ethiopia, in October 2020. The 74 revised full papers were carefully reviewed and selected from more than 200 submissions of which 157 were sent out for peer review. The papers present economic and technologic developments in modern societies in 6 tracks: Chemical, food and bio-process engineering; Electrical and computer engineering; IT, computer science and software engineering; Civil, water resources, and environmental engineering; Mechanical and industrial engineering; Material science and engineering.

Watershed management has evolved and passed through several developmental stages. Realising the importance of watershed management, great efforts have been made by the government in preparing implementation strategies and the technical institutions have also introduced the subject in their curriculum at senior undergraduate and postgraduate levels of civil and agricultural engineering. Since this is a multidisciplinary subject, it finds place in environmental science and forestry curriculum as well. The book, comprising of 16 chapters, provides comprehensive coverage of the subject. Covering the concepts and principles of watershed management, the book discusses watershed characteristics, causes of watershed deterioration, soil erosion and soil–water relationship, management of natural drainages in watershed, wasteland, landslide and land drainage management, arable and non-arable land, design flow and design storm and effect of watershed on the community. Chapters on flood routing through channels and reservoirs in watershed and flood damage mitigation management in watershed add further value to the book.

Irrigation Engineering And Hydraulic Structures
Irrigation Engineering and Hydraulic Structures
Irrigation Engineering and Hydraulic Structures for [Civil Engineering Degree Students
AMIE (section B) Exams : U.P.S.C. and Other State Service Competitions : and for Professionals]
Irrigation and Water Resources Engineering
New Age International
Contributed articles.

Designed primarily as a textbook for the undergraduate students of civil and agricultural engineering, this comprehensive and well-written text covers irrigation system and hydroelectric power development in lucid language. The text is organized in two parts. Part I (Irrigation Engineering) deals with the methods of water distribution to crops, water requirement of crops, soil-water relationship, well irrigation and hydraulics of well, canal irrigation and different theories of irrigation canal design. Part II (Water Power Engineering) offers the procedures of harnessing the hydropotential of river valleys to produce electricity. It also discusses different types of dams, surge tanks, turbines, draft tubes, power houses and their components. The text emphasizes on the solutions of unsteady equations of surge tank and pipe carrying water to power house under water hammer situation. It also includes computer programs for the numerical solutions of hyperbolic partial differential equations. **KEY FEATURES :** Provides worked out examples and problems (in SI units). Presents all possible methods of design including Ranga-Raju-Misri's new approach of canal design. Gives numerous illustrations to reinforce the understanding of the subject. Besides undergraduate students, this book will also be of immense use to the postgraduate students of water resources engineering.

This book focuses on irrigation sources together with water management for agricultural development in Uttar Pradesh state of India. Being the most populous state of the country, it bears a burden of feeding about 199 million people of which major section relies on agriculture for their subsistence. This study makes comparison in the growth trends in the irrigated area, crop land use patterns and crop productivity at the district level in different periods of time. The book emphasizes on irrigation water management to optimize crop yields in order to increase Water Productivity of crops in low productivity regions of the state applying suitable technology. This book appeals to researchers and students in geography and planning working on the topics of agriculture as well as irrigation and water management aspects.

This book discusses in detail the planning, design, construction and management of hydraulic structures, covering dams, spillways, tunnels, cut slopes, sluices, water intake and measuring works, ship locks and lifts, as well as fish ways. Particular attention is paid to considerations concerning the environment, hydrology, geology and materials etc. in the planning and design of hydraulic projects. It also considers the type selection, profile configuration, stress/stability calibration and engineering countermeasures, flood releasing arrangements and scouring protection, operation and maintenance etc. for a variety of specific hydraulic structures. The book is primarily intended for engineers, undergraduate and graduate students in the field of civil and hydraulic engineering who are faced with the challenges of extending our understanding of hydraulic structures ranging from traditional to groundbreaking, as well as designing, constructing and managing safe, durable hydraulic structures that are economical and environmentally friendly.

Rural development technologies are critically important for the country to improve the quality of life in villages. In this context, held a National Workshop on "Technologies for Sustainable Rural Development: Having Potential of Socio-Economic Upliftment (TSRD–2014)" to frame a road map for the future which will lead to the development of rural areas and improve the socio-

economic condition of rural masses through the intervention of Science and Technology.

The Book Irrigation And Water Resources Engineering Deals With The Fundamental And General Aspects Of Irrigation And Water Resources Engineering And Includes Recent Developments In Hydraulic Engineering Related To Irrigation And Water Resources Engineering. Significant Inclusions In The Book Are A Chapter On Management (Including Operation, Maintenance, And Evaluation) Of Canal Irrigation In India, Detailed Environmental Aspects For Water Resource Projects, A Note On Interlinking Of Rivers In India, And Design Problems Of Hydraulic Structures Such As Guide Bunds, Settling Basins Etc. The First Chapter Of The Book Introduces Irrigation And Deals With The Need, Development And Environmental Aspects Of Irrigation In India. The Second Chapter On Hydrology Deals With Different Aspects Of Surface Water Resource. Soil-Water Relationships Have Been Dealt With In Chapter 3. Aspects Related To Ground Water Resource Have Been Discussed In Chapter 4. Canal Irrigation And Its Management Aspects Form The Subject Matter Of Chapters 5 And 6. Behaviour Of Alluvial Channels And Design Of Stable Channels Have Been Included In Chapters 7 And 8, Respectively. Concepts Of Surface And Subsurface Flows, As Applicable To Hydraulic Structures, Have Been Introduced In Chapter 9. Different Types Of Canal Structures Have Been Discussed In Chapters 10, 11, And 13. Chapter 12 Has Been Devoted To Rivers And River Training Methods. After Introducing Planning Aspects Of Water Resource Projects In Chapter 14, Embankment Dams, Gravity Dams And Spillways Have Been Dealt With, Respectively, In Chapters 15, 16 And 17. The Students Would Find Solved Examples (Including Design Problems) In The Text, And Unsolved Exercises And The List Of References Given At The End Of Each Chapter Useful.

[Copyright: 5f4880ea44f0dbef3ccb225084576770](#)