

PREFACE

The development and application of the mathematical models in hydrology have increased tremendously during the last three decades, particularly with the rapid developments in computer technology. The mathematical functions or conceptual elements employed to simulate the natural hydrological processes are subjected to the limitations of the present state of knowledge of physical behaviour, mathematical constraints, data availability and user requirements. Empirical (black box) hydrological models are mainly of interest as single event based models or as sub-components of more complicated models. Lumped conceptual models are especially well suited to simulation of rainfall-runoff process when hydrological time series sufficiently long for a model calibration exist. For complicated problems, particularly those involving natural and man-made changes in land use, physically based distributed modelling approach becomes necessary.

This specialised training course on: **HYDROLOGICAL MODELLING** is being organised under the World Bank aided Hydrology Project. The course material for this course was prepared by the Scientists of National Institute of Hydrology who had wide range of experience in the area of hydrological modelling. In this course emphasis has been laid on the concept of hydrological modelling and its relevance to India, event based hydrological models, lumped conceptual continuous models, distributed hydrological models, statistical and stochastic modelling, and water quality modelling, besides the basic hydrology and basic statistics. This course material would not only be useful for the course participants but would also be a good reference material for practicing hydrologists and engineers, particularly those working in the field.

It is expected that the participants of this training course would not only make the best use of it but also would disseminate the subject matter among their colleagues.

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