

P R E F A C E

The National Institute of Hydrology is a premier research Institute under the Ministry of Water Resources, Government of India. The Institute is involved in studies and research in different aspects of hydrology, water resources, and related areas including development of computer oriented approaches, field studies and technology transfer. The Institute started the activities of organisation of short duration workshops from 1985 onwards on various topics dealing with hydrologic analysis, design and modelling for surface and groundwater, application of computer oriented techniques, etc. These workshops, organised at Roorkee and in the States, have generated considerable interest among the field engineers and officers of Central and State Organisations. During these workshops, besides the course material covering lectures, tutorials, etc., the computer programs were made operational on available computers and were transferred to the concerned State organisations for their use.

Flood estimation is a very important component of water resources project planning, design, and operation. The optimal development of water resources depends to a considerable extent on flood flow control, design and construction of structural measures and taking proper measures for flood mitigation including non-structural measures like flood plain zoning, flood forecasting and warning, etc. Determination and prediction of flood peaks for small, medium and large catchments is a must for comprehensive water resources planning, flood flow forecasting, design of various drainage systems, flood control, design of hydraulic structures, etc. Flood routing procedures form an essential component of flood studies and design/operation of flood control and management measures.

The objective of this workshop is to present through lectures and tutorials as well as computer application, the theoretical basis for most commonly used methods as well as improved methods for flood routing and forecasting alongwith details of parameter estimation, data requirements, and advantages/limitations of these methods. Special emphasis has been laid on use of computer programs for this purpose and these will be demonstrated through tutorials and practical exercises. It is expected that this

course material, would not only be used during the workshop, but also in the professional activities for improvement of hydrological analysis and design, and considerable efforts put in by the Scientists of this Institute would lead to improvement in the design practices for water resources development in the country.

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