# Computation of Flow Hydrograph of the Highest Rainfall Data by Using HEC-HMS Model in JHIKHU KHOLA Waterhed Nepal

A dissertation submitted to the Central Department of Hydrology and Meteorology, Tribhuvan University, in the partial fulfillment of the requirements for

**THE MASTERS OF SCIENCE IN METEOROLOGY.**

BY

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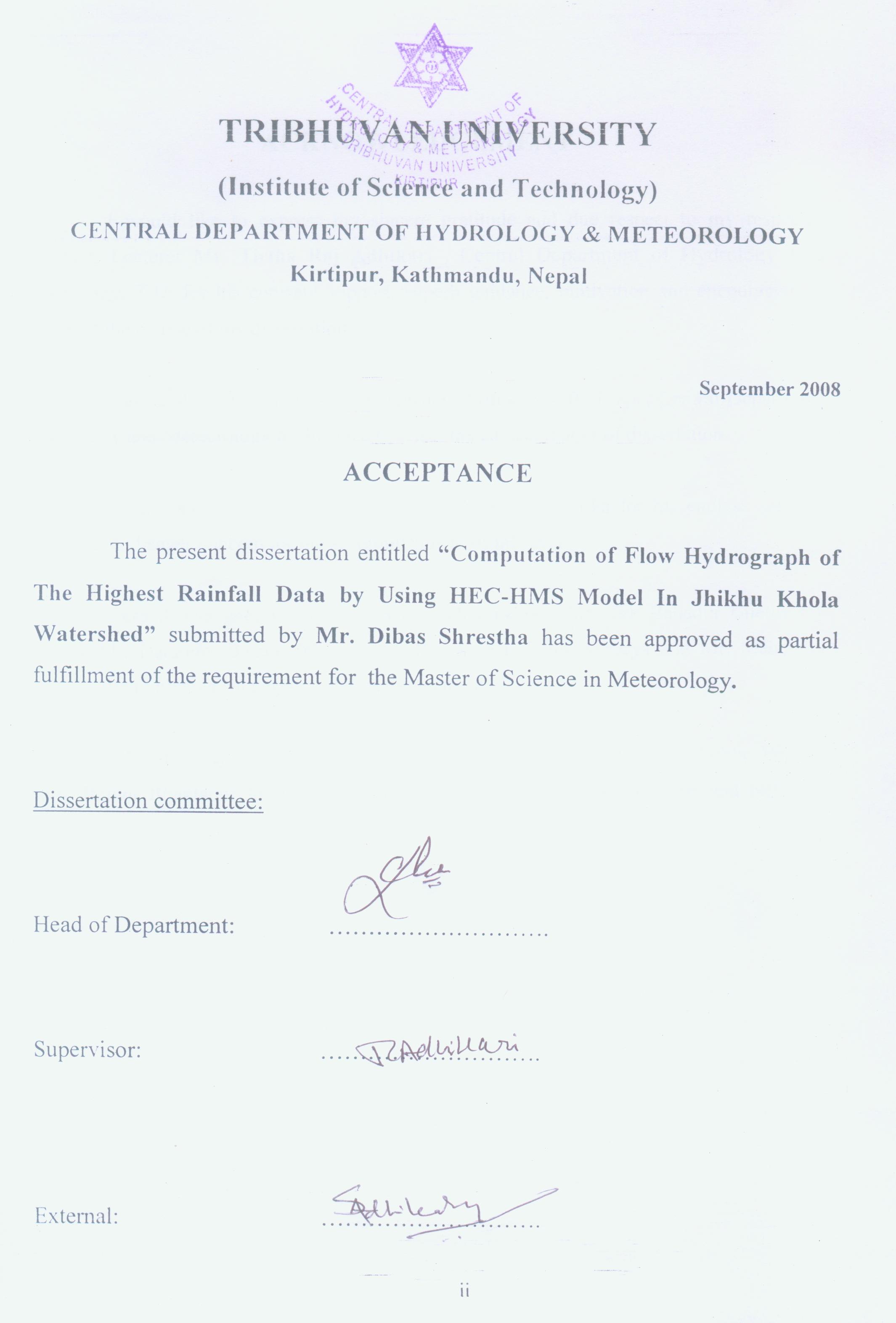
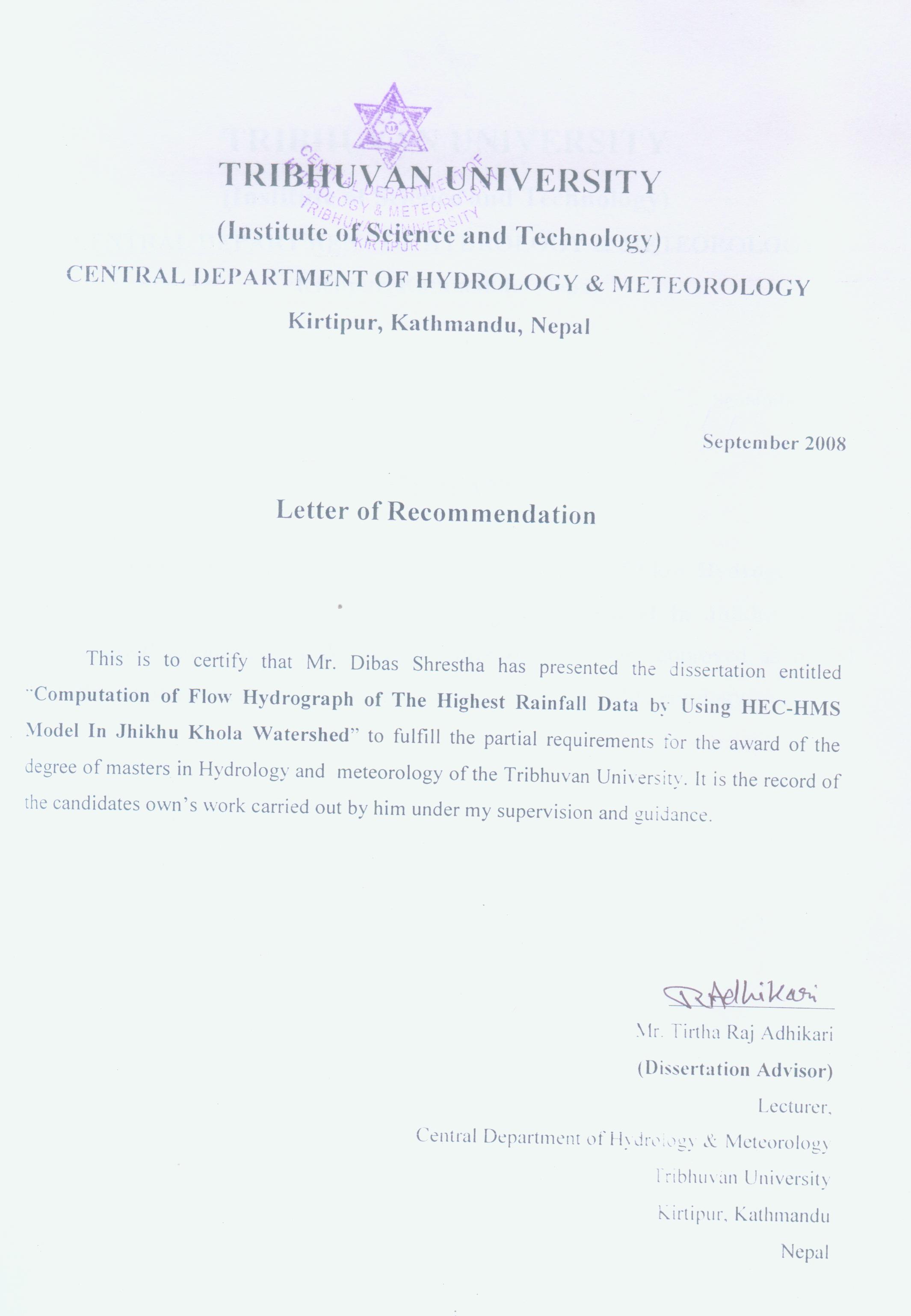
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**ABSTRACT**

Computer simulation modeling is used as the tool in the present thesis work to model the Jhikhu Khola watershed. The event- base models simulate flood flow and determine volume peak and time to peak of flood flow generating by any storm event. HEC- HMS model have been selected to use for simulation. The HEC-HMS requires lumped or conceptual input parameter that is Unit Hydrograph parameters. Optimization of the parameters has been done to determine the hydrological parameters that can be used in the Jhikhu Khola and in the ungauged watershed with similar hydrological and meteorological environment.

Optimization was done from the gauged data of the rainfall and runoff with the trail initial values for all parameters. Through optimization options available in HEC-HMS different model parameters have been optimized and Clark’s Unit Hydrograph has been prepared. The parameters as that of unit hydrograph and base flow have been obtained. This value is used as input parameters to model the water shed. A hydrograph at the outlet, for eleven selected rainfall, event is obtained from the simulation of the rainfall runoff process by running the model. The validation of the obtained discharge with the observed is also carried out. A regression analysis is carried out between rainfall and base flow; rainfall and total excess; rainfall and total losses; Rainfall and Direct Runoff; constant rate of infiltration and rainfall, finally a comparison of observed, simulated discharge and constant loss of selected rainfall events has been done.**TABLE OF CONTENTS**

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