

Department: SPACE SCIENCE

Batch: MS -7 (RSGS)

Session Year: SPRING-2019

Faculty : DR. MUJTABA HASSAN

Course: 720406 Hydrological Modeling Using GIS

Semester: 2nd Semester

Section: A

Submit Date: 14/05/19

Credit Hour: 3

COURSE DESCRIPTION

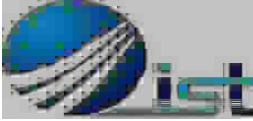
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TEXT AND MATERIALS

Textbook:

References:

Chapter & Topic Detail	
Chapter	Topic
Introduction to hydrological models	Climate Modeling Overview; Climate Data PostProcessing;
	The water cycle; Defining hydrological processes; Types of hydrological models Core GIS tools for surface water analysis; Data sources for Hydrological analyses; Application tools
Introduction to watershed modeling -Impact assessment on water resources -Flood frequency studies	
Optimization of HEC-HMS simulation run- Selecting sensitive parameters	
Model calibration strategies - Model calibration processes - Selecting initial parameter values	
Overview of channel routing techniques - Choice of routing method -How to estimate model parameters	
Automatic optimization tools in HEC-HMS- Use of the optimization tools to estimate unit hydrograph	
Introduction to HEC-DSSVue -Creating and managing data in support of hydrology studies	
Introduction to HEC-HMS; -Model capabilities - Data entry and editing -Simulation run and viewing	
HMS scheme generation-HEC-HMS project creation	
HMS parameters computations	
HEC-HMS Applications -Urban Flooding Studies - Flood Frequency Studies -Flood Warning System Plan	
HEC-GeoHMS-ArcGIS preprocessor for HEC-HMS	



Chapter & Topic Detail

Chapter	Topic
DEM preprocessing-Arc Hydro as a starting point	
Introduction to ArcGIS and Arc Hydro for water resources analysis	