INSTITUTE OF SPACE TECHNOLOGY, ISLAMABAD

Course Outline

Date: 15/05/19
At: 11:31

Department: **SPACE SCIENCE**

Batch: MS -7 (RSGS)
Semester: 2nd Semester
Session Year: SPRING-2019
Section: A
Faculty : DR. MUJTABA HASSAN
Submit Date: 14/05/19
Course: **720406 Hydrological Modeling Using GIS**
Credit Hour: 3

COURSE DESCRIPTION
not entered

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	
Omptimization of HEC-HMS simulation run-Selecting senstive prarameters	
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	

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