Department of Civil Engineering

SCMS School of Engineering and Technology (SSET)
Vidya Nagar, Palissery, Karukutty,
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WEBINAR 6

SYSTEMS CONCEPT IN HYDROLOGY

Dr. Suresh A. Kartha
Associate Professor
Department of Civil Engineering
Indian Institute of Technology Guwahati

11 AM to 12 Noon | **15th May 2020**

Join for the webinar at 10.45 AM to avoid last minute hassles.
Webinar open for students of SSET only.

SSET Student Chapter

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Break the chain

SCMS School of Engineering and Technology

Department of Civil Engineering

SYSTEMS CONCEPT IN HYDROLOGY

Date: 15/05/2020

A webinar on the topic "System Concepts in Hydrology" was organized by the Department of Civil Engineering. The session handled by Dr. Suresh A Kartha,Associate professor (CE),IIT Guwahati was held through ZOOM platform.The webinar started at 11:00 am witnessed a participation of almost 50, including students and faculty of the department.

He explained the concepts in hydrology considering hydrology as a system where every input provided to the system gives us an output , where input is the cause and output is the effect produced due to the cause. This session was based on the concepts byVenTe Chow in his book, 'Applied hydrology'.During the session,Dr.Suresh explained that hydrology encompasses the occurrence, distribution, movement, and properties of the waters of the earth. It involves the interaction of water with the physical and biological environment.Hydrologic system is a system of interrelated components, including the processes of precipitation, evaporation, transpiration, infiltration, groundwater flow, streamflow, etc., in addition to those structures and devices that are used to manage the system. Hydrologic system is subject to different kind of weather pattern and spatial complexity, and is dynamic and random in nature. Each of component in hydrological cycle are called processes. He also explained watershed as a system with natural barriers like hill surrounding it thus watershed becomes a system with a single inlet and a single outlet .He also explained modelling techniques used in hydrology. The systems analysis approach examines the overall operation in the system generating output from the input. This approach helps in simulating a mathematical model for simulating the output based on the input provided and considering various physical and chemical processes occurring in the system. The systems can be time dependent or time independent, deterministic or stochastic , linear or nonlinear based on the time , space and probability .He also explained that unit hydrograph is a deterministic approach and also explained how calibrations are made based on each approach. He explained in detail about deterministic and stochastic model. A deterministic system is a system in which no randomness is involved in the development of future states of the system , hence it was simpler

than the stochastic model in which randomness is involved hence modelling is more complex as it varies with time.

The session was very helpful to us as we got basic concepts used in hydrology, how hydrology works as a system and how it can be modelled based on the input and the physical , chemical and biological processes occurring in the system. At the end of the one hour session doubt clearing session was also provided. Dr. Suresh also gave us information on various internships offered by IITG and the procedures for applying to the internship. In short the session was very informativeand beneficial to us.

Glimpses of the Webinar: