Hydrological Measurements and Analysis of Data - Web course

COURSE OUTLINE

Data are the foundations on which all hydrologic analysis, design, and management decisions rest. This course introduces the fundamental concepts and techniques of hydrologic measurements. It covers the various data that are used in the field of hydrology including precipitation, streamflow, ground water, water quality, evaporation, temperature, humidity, etc.

Course modules cover the instruments and methods of observation and processing of data. In addition, discussion covers other data which are important inputs in hydrologic studies such as agricultural data, socio-economic data, and water demand data. Spatial data such as topographic details, soil and land use maps, are integral inputs in all stages of hydrologic studies and have been covered in details.

After the data have been collected, these are used in analysis and design and useful inferences are drawn. To that end, commonly used techniques of statistical analysis are also covered.

The course should be helpful to all those involved in pursuing studies in the field of hydrology and water resources development.

COURSE DETAIL

Chapter	Title	Hours for chapter
1	Introduction – the Hydrologic Cycle	3
2	Measurement	4

NPTEL

http://nptel.ac.in
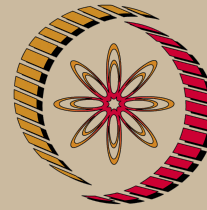
Civil Engineering

Pre-requisites:

- Basic knowledge of hydrology.

Additional Reading:

- Herschey, R. W. (Editor). (1995). Streamflow Measurement. Chapman & Hall, E & F N SPON, London.

- WMO (2008). Guide to Hydrological Practices. WMO No. 168. World Meteorological Organization, Geneva.

Hyperlinks:

- **Bureau of Indian Standards:** http://www.bis.org.in/

- **Central Water Commission:** http://www.cwc.gov.in/

- **India Meteorological Department:** http://www.imd.gov.in/

- **International Standards Organization:** http://www.iso.org/iso/iso_catalogue/catalogue_tc/catalogue_tc_browse.htm?commid=51678

Coordinators:

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	and Processing of Hydrological Data	
3	Measurement and Processing of Rainfall Data	5
4	Measurement and Processing of Streamflow Data	5
5	Measurement and Processing of Meteorological Data	4
6	Measurement and Processing of Water Quality Data	5
7	Ground Water and Other Data	5
8	Acquisition and management of spatial data	3
9	Hydrological databases and Dissemination of Data	1
10	Statistical Analysis of Hydrological Data	5
11	Regression, Correlation a n d Data Generation	5
	Total hours	**45**

References:

- Jain, S.K., and Singh, V.P. (2003). Water Resources Systems Planning and Management. Elsevier, Amsterdam.

- McCuen, R.H. (1989). Hydrologic Analysis and Design. Prentice Hall, New Jersey.

- Various codes of the Bureau of Indian Standards, New Delhi.

- Manuals of World Meteorological Organization.