

# Agricultural Watersheds: Hydrologic and Water Quality Data Collection and Analysis

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## Overview

Sustainable management of water resources requires understanding the hydrologic cycle, sources and modes of transport of non-point pollutants, water quality issues, and the effectiveness of various land and water management practices. Protecting water resources while maintaining/enhancing agricultural productivity remains a significant challenge. In this course, the water balance and associated water quality issues will be explored in agricultural watersheds with emphasis on measurement/estimation and data collection/analysis techniques.

This course aims to present hydrologic and water quality concepts that are critical for assessing and managing non-point pollution in small agricultural watersheds. Upon successfully completing this course, participants will be able to: i) Apply appropriate estimation methods for the various components of the water balance, ii) Analyze and interpret precipitation, evapotranspiration, infiltration and runoff data, both independently and in an integrative way, iii) Understand field methods and associated limitations for measuring precipitation, evapotranspiration, infiltration and runoff, and iv) Describe and synthesize relationships between hydrologic changes (via the water budget) and water quality impacts.

Course participants will learn the topics through lectures, discussions and hands-on water collection techniques and analysis methods.

<b>Modules</b>	<b>A: Hydrologic Data : December 10 - December 14, 2018</b> <b>Number of participants for the course will be limited to fifty.</b>
<b>You Should Attend If...</b>	<ul style="list-style-type: none"><li>▪ you are a B.Tech / M.Tech / PhD student of Agricultural, Civil and Environmental Engineering and wants to learn fundamental concepts of watershed engineering.</li><li>▪ you are a Faculty Member and Research Associate from reputed academic institutions and like to know about water quality data collection and analysis.</li></ul>
<b>Fees</b>	The participation fees for taking the course is as follows: <b>Participants from abroad : US \$500</b> <b>Industry/ Research Organizations: ₹30000</b> <b>Academic Institutions: ₹10000</b> The above fee include all instructional materials, computer use for tutorials and assignments, laboratory equipment usage charges, 24 hr free internet facility. The participants will be provided with accommodation on payment basis.

## The Faculty



**Prof. A.M. Thompson** is currently Professor of Biological Systems Engineering and Nelson Institute Professor of Water Resources at the University of Wisconsin – Madison, USA. She is Chair of the Water Resources Management Graduate Program in the Nelson Institute for Environmental Studies and she holds Affiliate Faculty appointments in Agroecology and Environmental Chemistry & Technology at the University of Wisconsin – Madison. Her research program is focused on water quantity and quality impacts associated with land use change. She has addressed thermal pollution/mitigation; runoff generation; performance of engineered infiltration practices, treatment wetlands, and erosion control practices; transport and delivery of sediment, nutrient, and pathogens; surface/subsurface water and nutrient dynamics associated with biofuel cropping systems; and wintertime hydrologic/erosion processes.



**Dr. D.R. Mailapalli** is an Assistant Professor of Land and Water Resources Engineering, Agricultural and Food Engineering Department, IIT Kharagpur. His teaching and research interests are in non-point source pollution, agricultural water and waste management, irrigation hydrology and hydraulics, sediment and nutrients transport, and nanomaterials in agriculture.



**Dr. Ashok Mishra** is an Associate Professor of Land & Water Resources Engineering at the Department of Agricultural and Food Engineering at IIT Kharagpur. His teaching and research areas comprise of hydrological modelling & watershed management, crop yield modeling, climate change analysis & its' applications in water and crop management.

## Course Co-ordinators

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