



CAPACITY BUILDING PROGRAM by Agricultural Education Division, ICAR



ICAR sponsored Short Course on

“MOUNTAIN HYDROLOGY AND CLIMATE CHANGE”

During

March 20-29, 2018

For details visit <http://cbp.icar.gov.in/>

or

www.gbpuat.ac.in



About the University

G. B. Pant University of Agriculture and Technology (GBPUA&T) is the first agricultural university of India. Pt. Jawaharlal Nehru, the first Prime Minister of India, laid the foundation stone on 17th November 1960 as the Uttar Pradesh Agricultural University (UPAU). Later the name was changed to Govind Ballabh Pant University of Agriculture and Technology in 1972 in memory of the great freedom fighter Govind Ballabh Pant. The University lies in the campus-town of Pantnagar in the district of Udham Singh Nagar in the state of Uttarakhand. The university is regarded as the harbinger of Green Revolution in India. The G.B. Pant University is a symbol of successful partnership between India and the United States.

How to Reach

Pantnagar is about 250 kilometers from Delhi, 360 kilometers from Lucknow, 90 kilometers from Moradabad, 75 kilometers from Bareilly and 65 kilometers from Nainital by road. It is connected to the rest of world by the Delhi Nainital National Highway and the Bareilly Nainital Highway. A large number of state and interstate buses fly on these roads. Two railway stations of North Eastern Railways- **PANTNAGAR (PBW)** and **HALDI ROAD (HLDD)** are located in the campus at a distance of 4 kms (east) and 2 kms (west) respectively from administrative building. Further, **LAL KUAN (LKU)** is the nearby important junction situated at a distance of 8 kms from the campus.

University shuttle service, local cycle rickshaws/e-rickshaws/auto rickshaws and matador vans connect various parts of the campus. The weather is normal with little high humidity at Pantnagar during September and stay will be very much enjoyable in this location, which is rich in flora and fauna.

www.irctc.co.in / www.indianrail.gov.in / <https://utconline.uk.gov.in/>

Places of interest:

Nainital, Binsar, Sattal, Bhimtal, Ranikhet, Almora, Bhowali, Poornagiri, Nanakmatta and Jim Corbett Park are nearby places of interest in the Kumaun region.

For more details www.kmvn.gov.in or www.uttarakhandtourism.gov.in or www.gmvnl.com

Introduction

Hydrology treats all phases of earth's water and is a subject of great importance for people and their environment. It deals with the water of the earth: their distribution and circulation, their physical properties and interactions with the continuously changing environment. The knowledge of engineering hydrology is useful in managing and controlling water resources, particularly design and operation of hydraulic structures, irrigation, water supply, hydropower generation, flood control, conjunctive use of ground and surface water, integrated water resources management etc.

The short course focuses on hydrology of mountains, which provide water around 40 % of the world population. Changes in temperature and precipitation have in recent years led to the retreat of glaciers in mountains. Climatic changes do not only affect glaciers or the nival zone; a change in climatic conditions also has an impact on the entire hydrological and biogenous system of mountainous environments. The transport of water through the atmosphere to mountainous regions and subsequent precipitation in the form of rain and snow is of great importance to mountain hydrology. It feeds the glaciers, infiltrates to become groundwater, runs off into rivers or evaporates to the atmosphere again. However, exact precipitation patterns in the mountains are often difficult to understand. Complex small and large scale orographic effects can have significant effects on the spatial distribution of precipitation. Rain, glacial melt water and groundwater all end up in one place, rivers. They transport the water from the mountain ranges via the lowlands back to the seas and oceans. People in downstream areas are often dependent on this water for their livelihoods. Temperature is a spatially highly variable component in mountain ranges due to fact that it lapses with altitude, complex winds and shading are present in valleys, and radiation budgets can vary locally. As the state of matter of water is determined by the temperature, it dictates where glaciers will form, where rain will fall and where evaporation takes place.

Objectives

The objectives of this short course are

- To provide advance training to the scientists/faculty of ICAR/SAUs/KVKs and improve their skills in the area of Mountain Hydrology and Climate Change
- To have the exposure through field visits on Mountain Hydrology and the effects of climate change
- To provide an opportunity to discuss and exchange ideas/knowledge sharing between the academicians and with the experts/resource persons who have made notable contributions in this area, as well as to develop inter-institutional linkages on the subject.

Course Contents

Basics of Hydrology with reference to Mountains / Hilly regions, Mountain hydrology and climate change, Surface science of water, Water management and harvesting. Hydrologic Extremes of Floods and Droughts, Climate Change –Basics including IPCC Reports, Assessment, Projections and related Models (GCMs and RCMs), Climate Change Impacts on Water Resources in River Basins and Energy sector, Scale Issues and Uncertainties in Climate Change Impacts, Climate Change Impacts on Agriculture, Natural Ecosystems and on Glaciers and Adaptation to climate change and management with special reference to Hilly Areas.

Methodology

The course will consist of in-house lectures, field demonstrations, practical's, hands on training, interactive discussions, group discussion, movie show, case studies, presentations, laboratory visits, institutions visit will be a part of the course and field visit to nearby mountainous areas, to know about the aspects of mountain Hydrology. One day exposure visit to lakes like Bhimtal, Sattal, Nainital and Gola river barrage including mountainous/valley areas.

Eligibility:

This short course is meant for researchers/ faculty in ICAR Institutes/State Agriculture Universities/Central Agriculture Universities/ Agricultural faculties of AMU, BHU, Vishwa Bharti and Nagaland University/Krishi Vigyan Kendras of related disciplines in the cadre of Assistant Professor or equivalent and above.

The participants should have degree of Master's Degree in Agriculture and allied disciplines related to the short course. Participants will be selected on the basis of their ability to benefit from the course as per guidelines of ICAR. The number of participants for the short term course will be limited to 25 only.

How to Apply

The participants' should apply for the short course through the online Capacity building programme Vortal cbp.icar.gov.in or under the Quick links' Capacity Building Programme at www.icar.org.in. After filling the online application, the participant has to take the print out of the application form and get it approved by the competent authority of the respective organization. Finally, the scanned copy of the application has to be uploaded in the CBP vortal. In case of any difficulty, feel free to contact the Course Director.

Important Dates:

Closing date for receipt of applications : **31st December 2017**.

Intimation of selected of candidates through e-mail and will be notified on CBP Vortal: **15th January 2018**.

Confirmation of selection by participants: **20th January 2018**

Short Course Period: **March 20-29, 2018**

TA, Boarding and Lodging

Participants will be paid to and fro fare for journey restricted to AC-II tier train fare (Non Rajdhani /Non Dynamic fare) or bus from the place of duty to Pantnagar and back by the shortest route on production of original tickets by the selected participants. The participants will be provided with twin shared accommodation and served vegetarian food, free of charges in the guest house of the University.

ADDRESS FOR CORRESPONDENCE

Course Director

Dr. H J Shiva Prasad

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Course Coordinator

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