GLOBAL INITIATIVE OF ACADEMIC NETWORK (GIAN)

Ministry of Human Resources Development
Government of India

COURSE ON
Crop Water Use Estimation in 21st Century with Advances in Geospatial Technologies
22nd April – 3rd May , 2019
Venue

JNTUH College of Engineering, Kukatpally, Hyderabad

About GIAN:
Govt. of India approved a new program titled Global Initiative of Academic Networks (GIAN) in Higher Education aimed at tapping the talent pool of scientists and entrepreneurs, internationally to encourage their engagement with the institutes of Higher Education, viz., all IITs, IIMs, Central Universities, IISc Bangalore, IISERs, NITs and IIITs subsequently cover good State Universities where the spinoff is vast. The GIAN website may be visited for detailed information.

Overview
Sustainable development of limited water resources is essential for maintaining all aspects of life, preserving environment, and growing economy. Water management techniques are required to optimize the beneficial uses of the available limited water resources to meet human and ecological needs. Critical elements of water management include knowledge of supply and demand along with the spatiotemporal dynamics of the water sources and water demands. Since irrigation accounts for more than 90% of total water withdrawal in India, estimates of agricultural water use are crucial for planning water resource allocation, managing water rights, mitigating droughts, sustaining agricultural production, and quantifying the

impacts of climate change and land use/land cover changes on water resources over space and time.

Local and regional hydrologic processes are impacted by the water lost during evapotranspiration (ET) due to soil-plant-atmosphere interactions. Remotely sensed images are widely used to quantify daily and seasonal ET estimates over large areas in many river basins around the world. Such information helps farmers to improve irrigation efficiency and conserve water.

In recent years, the availability of no-cost satellite images, advances affordability of computing technology, has allowed the development and use of remotely sensed images for water use estimation. It is essential that to make the best use of latest technology and advances in water management. This course is designed to meet this goal of enriching technical expertise of professionals for 21st century water management.

Number of participants is limited to fifty

Benefits of Attending the Course (Course Objectives):
Candidates who have attended the course will understand the various components of hydrological cycle for water management and familiarize with geospatial technologies in crop water use estimation. Develop the state-of the art skill, knowledge and abilities on using geospatial technologies in crop water use for engineers, scientists, and professionals and also help improving the knowledge and understanding of the participants and enabling to visualize from research and future point of view.

Who should attend:
This course is intended to provide students, teachers, researchers, executives, engineers and researchers from manufacturing, service and government, organizations including NGOs and R&D laboratories.

Students at all levels (BTech/MSc/MTech/PhD) or Faculty from reputed academic institutions and technical institutions are invited to attend.

For the participation in the course, registration with GIAN is mandatory.
Registration to the portal is one-time affair and will be valid for the lifetime of GIAN. Once registered in the portal, an applicant will be able to apply for any number of GIAN courses as and when necessary. One-time Non-refundable fee of Rs. 500/- is to be charged for this service**.** For registration, the website **is:** *www.gian.iitkgp.ac.in/GREGN/index*

Course Fee:
The participation fees for taking the course is as follows:

Participants from abroad (US dollars):	**$500**
Industry/ Research Organizations	**: Rs. 7000/-**
Academic Institutions	**: Rs. 5000/-**
Full time Students	**: Rs. 2000/-**
Full time SC/ST students	**: Rs. 1000/-**

There will be a concession of 50% of the fee for the faculty working in the constituent and affiliated colleges of JNTUH. The above fee includes all instructional materials, computer use for tutorials and assignments, laboratory equipment usage charges, 24 hours free internet facility, Tea, Snacks, Lunch**.**

Evaluation and Grading
There will be evaluation at the end of each module on the understanding of the concepts by the participant made during the course. Based on the evaluations finally a letter grade will be awarded to the participant. A completion certificate shall also be issued.

The Faculty

Dr. Ramesh Kumar Singh has 23 years of scientific research and management experience that includes last 9 years at the USGS EROS Center. Dr. Singh has the teaching, research, and scientific project management experience needed to successfully conduct cutting edge research in the field of Remote Sensing (RS) and Geographical

Information Systems (GIS) applications in water resources assessment, development, and management. Dr. Singh obtained his B. Tech. in Agricultural Engineering from Dr. Rajendra Prasad Central Agricultural University, Pusa, M. Tech. in Water Resources Development and Management from IIT, Kharagpur, and PhD in Biological Systems Engineering from University of Nebraska-Lincoln, USA. Dr. Singh uses his experience building and leading numerous research teams that produced innovative results and successful project outcomes to deliver quality work for the EROS scientific environment on time and within budget. He used Landsat data to quantify seasonal water consumption and produced first ever water use map of Colorado River Basin at Landsat scale. Those fundamental concepts continue to inform his work, particularly his leadership on the WaterSMART project.

Dr. Singh played a key role in establishing Hydrologic Lab at University of Nebraska-Lincoln for evapotranspiration modeling using geospatial techniques and worked towards utilization of this approach for water management by the Department of Natural Resources for their operational and policy making decisions. While working at the Indian Institute of Remote Sensing under Indian Space Research Organization, he supervised and managed 35 trainees for their project reports and dissertations. Also, he had a leadership role in Indian Society of Remote Sensing. Dr. Singh has more than 80 publications to his credit with research papers in peer reviewed international journals and conference proceedings. He is an acclaimed researcher in the field of remote sensing and GIS Applications in water resources and is highly cited in peer reviewed journals. His Google Scholar h-Index is 16 with 1640 citations and is in the top 20 researchers in the field of evapotranspiration modeling. He is on review panel of many journals such as Journal of Hydrology, Water Resources Research, Remote Sensing of Environment, International Journal of Remote Sensing, ASCE Journal of Irrigation and Drainage Engineering, Remote Sensing, Irrigation Science, Journal of American Water Resources Association etc.

Dr. M.V.S.S Giridhar is working as Associate Professor in Centre for water resources, Institute of Science and Technology, JNT University; Hyderabad (JNTUH). He Graduated in Civil engineering from Nagarjuna University (1993) and did his M.Tech (Water Resources Development and Management) from Indian institute of Technology (IIT), Kharagpur (1995). He obtained his Ph.D in Civil Engineering from Jawaharlal Nehru Technological University Hyderabad in 2007. He is an academician having 20 years of teaching, research and administrative experience. He was coordinator for the World Bank funded project TEQIP- II (Technical Education Quality Improvement Programme Phase II-IST, JNTUH) and for TEQIP-III. He was also coordinator for the Centre for Earth Atmospheric Weather Modification Technology CEAWMT, IST, JNTUH. He also worked as Additional Controller of Examinations of the university from 2010 to 2014. Dr. Giridhar has participated in more than 50 Conferences at national and international level on themes related to his subject expertise to share his views in the field of water resources. With the funds received from the Central Ground Water Board, MoWR, AICTE, he constructed 24 recharge bore wells in the University campus and every year more than 10.0 crore liters of rainwater is being harvested and recharged into the aquifers after proper filtration. Dr. Giridhar has published 130 research papers in various National/International Journals/conferences. He guided one Ph.D student and also guided 32 M.Tech dissertations. He has organized several national and international conferences and workshops. He published three international proceedings and six national proceeding as an editor, nine training programs in the area of Geospatial applications for water resources and environmental engineering. He is a Member of institution of Engineers and a member of various reputed professional bodies.

About the JNTUH:
The J.N.T University was in existence since 1972. It is ateaching and research oriented university consisting of 4 constituent engineering colleges JNTUH College of Engineering, Hyderabad (JNTUHCEH), JNTUH College of Engineering, Jagityala (JNTUHCEJ), JNTUH College of Engineering, Manthini (JNTUHCEM), JNTUH College of Engineering, Sulthanpur (JNTUHCES) and more than 400 affiliated colleges. In addition to the constituent colleges, the other units of JNTUH are School of Information Technology (SIT), Institute of Science and Technology (IST), School of Management Studies (SMS) and Academic Staff College (ASC). The university has numerous collaborative, teaching and research programs with universities from abroad and within India and with industries in the state of Telangana. The university offers engineering programs at both UG and PG level and many science and humanities programs at PG level. In addition, university also offers Ph. D. in engineering, science and humanities disciplines.

GIAN Contact Information

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