Overview of the Course

With the growing threat of more frequent and intense hydrologic disasters involving floods, there is a need to use and apply the state-of-the-art tools for flood risk management. Key components of flood risk management involve modeling of watershed hydrology, river hydrodynamics and mapping of flood inundation. With the availability of geo-spatial data and remotely sensed information for rainfall, topography, land use, soil, and stream flow, use of Geographic Information Systems (GIS) has become essential for modeling and mapping of floods. Besides data analysis and visualization, GIS can also be used to develop hydrologic and hydraulic models for understanding and simulating water resources of a region.

Many regions in India are experiencing the effect of land use change, population growth, and climate on water resources in the form of both water scarcity and floods. As a result there is a need to develop a workforce for addressing critical issues related to water by using GIS and related computational tools. The proposed course will involve hands-on training in the use of GIS for watershed hydrology, river hydrodynamics and flood inundation mapping. Specific focus will on using state-of-the-art data and computational tools for flood risk management.

Course Objectives

The objectives of the course are as follows:

- Expose participants to the advanced tools in GIS for topography (Digital Elevation Model) data management and analysis, including river bathymetry modeling.
- Provide training to access and use most commonly used global datasets in GIS for watershed hydrology and river analysis.
- Provide training to develop commonly used hydrologic and hydraulic models such as HEC-HMS and HEC-RAS for flood modeling and mapping.
- Provide training to create effective visualization of water resources data and analysis results for dissemination.
- Provide opportunity to all participants to develop projects for their local area by using the data and tools learned during the course.

International Faculty

Dr. Venkatesh Merwade is presently working as Professor in the Lyles School of Civil Engineering at Purdue University. He maintains an active research program in the area of surface water hydrology, computational modeling of river processes, application of geographic information systems for water resources, and development of cyber infrastructure for hydrologic modeling. Prof. Merwade has published more than 80 referred journal articles and conference proceedings papers, nine book chapters, and more than 100 conference abstracts/posters in his primary area of research. He has won several awards, including the 2011 Quentin Martin Best Practice Paper Award from the ASCE's Journal of Water Resources Planning and Management, and the 2017 Excellence in GIS Award from the Indiana Geographic Information Council. He teaches both undergraduate and graduate level courses at Purdue in the area of hydrology, hydraulics and computational hydrology. In addition to academic courses, he has offered workshops on GIS and Water Resources Modeling annually at Purdue since 2008. This workshop has been attended by practicing professionals, state and federal employees, and researchers from the United States and abroad.

His teaching material available on his website (http://web.ics.purdue.edu/~vmerwade/tutorial.html) is widely accessed and used by many professional all around the world for solving water resources problems. He is a member of the American Geophysical Union, American Society for Civil Engineers, and the American Water Resources Association.

Who can participate?

This program is open to the Faculty, Research scholars, and M.Tech/ M.E. students working in the areas of Hydrology, Hydraulics and Water Resources Engineering from various Institutes. Engineers working in Irrigation Department, Central Water Commission, Water supply, Urban Local Bodies, Industries, Consultancy firms, R&D laboratories can also participate.

How to Register?

Stage-1: Web Portal Registration

Visit http://www.gian.iitkgp.ac.in/GREGN/index and create login User ID and Password. Fill up the blank registration form and do web registration by paying Rs. 500/- online through Net Banking / Debit / Credit card. This provides the user with life time registration to enroll in any number of GIAN courses offered.

Stage-2: Course Registration

Login to the GIAN portal with the user ID and Password already created in Step 1. Click on Course Registration option at the top of Registration Form. Select the Course titled "Geographic Information Systems (GIS) Methods for Flood Risk Management" from the list and click on save option. Confirm your registration by clicking on Confirm Course.

Registration Fee

Faculty	Rs. 2,000/-
Participants from Industry / Research Organisations	Rs. 4,000/-
Students & Scholars from India	Rs. 1000/-
Participants from abroad:	
For Students	US $ 50
For Faculty	US $ 100

The Registration fee includes instructional material, laboratory use and session teas. **The outstation participants will be provided with boarding and lodging on additional payment of Rs. 4,000/- in Student Hostel on sharing basis.**

☐ Selection and Mode of Payment

Selected candidates will be intimated through e-mail. They have to remit the necessary course fee to the Bank as per the details given below.

Outstation participants requiring accommodation and boarding facilities have to pay Rs. 4,000/- in addition to the course fee.

Account Name	GIAN NITW
Account No.	62447453600
Bank	State Bank of India
Branch	REC Warangal (NIT Campus)
Branch Code	20149
IFSC	SBIN0020149
MICR Code	506004011
SWIFT Code	SBININBB018

Candidates registering early will be given preference in the short listing process. For any queries regarding registration of the course, please contact the Course Coordinator:

Prof. E. Venkata Rathnam
Course Coordinator,
Department of Civil Engineering,
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Tel: +91 870 2462118 (O);
+91 8332969246;
Email: evr@nitw.ac.in

Prof. N.V.Umamahesh
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☐ About the GIAN Course

Ministry of Human Resource Development (MHRD), Government of India (GoI) has launched an innovative program titled "Global Initiative of Academic Networks (GIAN)" in higher Education, in order to garner the best international experience. As part of this, internationally renowned Academicians and Scientists are invited to augment the Country's academic resources, accelerate the pace of quality reforms and elevate India's scientific and technological capacity to global excellence.

☐ About the Institute and Warangal

National Institute of Technology, Warangal (NITW) formerly known as RECW is the first among seventeen RECs set up in 1959. Over the years, the Institute has established itself as a premier Institution in imparting technical education of a very high standard, leading to B.Tech, M.Tech and Ph.D. programmes in various specializations of Science and Engineering streams. Warangal is known for its rich historical and cultural heritage. It is situated at a distance of 140 km from Hyderabad. Warangal is well connected by road and rail. National Institute of Technology, Warangal campus is 3 km away from Kazipet railway station and 12 km away from Warangal railway station. The nearest airport is Hyderabad.

☐ About the Department

The Department of Civil Engineering offers B.Tech programme in Civil Engineering, 7 M.Tech programmes and PhD programme. A recognized QIP centre since 1978, the Department has well established and well equipped laboratories. Well qualified and experienced faculty make the department strong in teaching, research, capacity building activities and industry extension services. Faculty members represent several policy making and professional bodies. The Department has liaison with reputed industries and R&D organizations.

Water & Environment Division is one of the four divisions in the Department of Civil Engineering and presently offers two M.Tech programs, one in Water Resources Engineering and the other in Environmental Engineering, besides the PhD program. Many field engineers have obtained their Master's degree working in the division. The division has well qualified, motivated and experienced faculty members.

GIAN
PROGRAMME

MHRD
Govt. of India

GEOGRAPHIC INFORMATION SYSTEMS (GIS) METHODS FOR FLOOD RISK MANAGEMENT

(25th July – 1st August, 2018)

Call for Registration and Participation

International Faculty

Dr. Venkatesh Merwade
Professor of Civil Engineering
Purdue University

Course Coordinators
Prof. E.Venkata Rathnam
Prof. N.V.Umamahesh

Water & Environment Division

Department of Civil Engineering

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