Overview of the Course:

Massive investments have been made on transportation infrastructure at both national and local levels worldwide. Road networks are vital parts of this infrastructure for ensuring safe and efficient public mobility and supply chain. India is one of the top three countries in the world owning millions of kilometers of roads; however its road condition is ranked below 20 worldwide. Inadequate maintenance and rehabilitation in many cases has resulted in accelerated pavement condition deterioration, which requires excessive funding to improve the road pavements at acceptable levels. Pavement Maintenance Management System (PMMS) has evolved as the primary technology and decision support system to prioritize maintenance and rehabilitation needs, work programs, and budget management. One of the key steps for short term and long term maintenance management programs requires the development of reliable pavement condition deterioration models for different functional classes and climatic regions.

These deterioration models should address both routine maintenance, such as pothole and crack repairs every year, and load and environmental related condition deterioration. A recent survey by the American Automobile Association reported that on average a vehicle owner spends about US $306 to repair pothole related damage to the automobile in addition to agency cost to make emergency repairs. It also leads to rapid deterioration of pavement structures. It is well known that pavement deterioration accelerates with time if timely maintenance and rehabilitation needs are not predicted and treated appropriately. Delayed treatments may be 4 to 5 times more costly than timely actions. Thus, implications on agency annual budgets and physical pavement condition are grave.

Course Objectives:

The primary objectives of the course are as follows:

- The process of collecting and recording field inventory, condition inspection, traffic data, and database development for deterioration modeling.

- Sampling design considering full and partial factorials based on functional class, structural thickness levels, subgrade strength levels, age levels, and traffic levels.

- Development of pavement deterioration models, to predict future conditions, and assigning future condition to families of different pavement sections, which is the basis for generating long term Maintenance and Rehabilitation work programs.

- Value engineering economic analysis using all life cycle cost and benefit streams for prioritizing, scheduling, budgeting, and evaluating alternative pavement maintenance and rehabilitation treatments.

International Faculty:

Prof. Waheed Uddin received PhD in 1984 in Transportation Engineering from The University of Texas at Austin and has been a registered Professional Engineer since 1986. He obtained his M.S. in 1975 and B.S. in 1970. Previously he was a pavement expert for the United Nations in the United Arab Emirates during 1989-91. **Dr. Uddin** joined The University of Mississippi in 1993 and currently, he is the Professor and Director of Center for Advanced Infrastructure Technology (CAIT).

Dr. Uddin has over 35 years of professional and teaching experience in highways, airports, sustainable development, air quality, and related areas of Transportation Engineering.

Dr. Uddin has been Principal Investigator and Co-Principal Investigator of research grants exceeding $ 12 million funded by The National Academies, U.S. DOT, FHWA, Mississippi DOT, NASA Stennis Space Center; additional $4.6 million software grant awarded by geospatial industry. He leads teaching and research programs in transportation, construction, materials, sustainable development, and natural disaster assessment using satellite imagery and geospatial analysis. His pioneering research in using airborne laser mapping has been in practice for highway alignment design in many states and implemented in FAA's airport obstruction survey standards. **Dr. Uddin** has offered numerous pavement lectures and courses in the U.S., Mexico, Brazil, Northern Ireland, Italy, Portugal, Greece, Turkey, UAE, Pakistan, Malaysia, Singapore, Brunei, Australia, and New Zealand. **Dr. Uddin** made over 190 presentations including 76 invited lectures and keynote speeches worldwide in 29 countries. **Dr. Uddin's** 245 publications include 2013 McGraw-Hill's Public Infrastructure Asset Management book and 165 peer reviewed papers in refereed Journals and conferences.

Who can participate?

This program is open to the Faculty, M.Tech students, Field Engineers and Research Scholars working in the areas of Transportation Engineering / Highways from various Institutes. Civil Engineers working in 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 "Pavement Deterioration Modeling and Maintenance Management" from the list and click on Save option. Confirm your registration by clicking on Confirm Course.

Registration Fee:

Faculty	Rs. 4,000/-
Participants from Industry / Research Organizations	Rs. 8,000/-
Students & Scholars - **Without award of Grade** - **With award of Grade**	Rs. 1,000/- Rs. 2,000/-
Participants from abroad	US $ 250

The Registration fee includes instructional materials, laboratory use and session teas. **The out-stationed 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	506002030
SWIFT Code	SBININBBH14

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

Dr. S. Shankar
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     +91 8332969259
Email: ss@nitw.ac.in

Dr. Venkaiah Chowdary
Course Coordinator
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✧ About 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 rail and road. National Institute of Technology, Warangal campus is 3 km away from Kazipet railway station and 12 km away from Warangal railway station.

✧ About the Department

The Department of Civil Engineering offers B.Tech programme in Civil Engineering, 7 M.Tech programmes including Transportation Engineering and PhD programme. The Department is a recognized QIP centre since 1978. The Department has well established and well equipped laboratories. The Department has experienced faculty engaged 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.

Transportation Engineering Division was introduced in the year 1968. This is the first Institution in India to have started a full-fledged M.Tech Degree Program in Transportation Engineering under the able guidance of Prof. Martin Ekse of Washington State University, USA, Prof. V.V. Sylyanov of Moscow Automobile and Road Construction Institute, USSR, and other distinguished experts in India.

Ten Days GIAN Course on

Pavement Deterioration Modelling and Maintenance Management

December 11 - 22, 2017

Call for Registration and Participation

International Faculty

Prof. Waheed Uddin
Director, Centre for Advanced Infrastructure Technology, University of Mississippi, U.S.A.

Course Coordinators
Dr. S. Shankar
Dr. Venkaiah Chowdary

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