One Week Short-Term Course on

Design and Performance of Pavements (DaPoP)

Sponsored by Ministry of Human Resource Development (MHRD), Government of India, New Delhi, Under the program 'Global Initiative of Academic Networks' (GIAN)

12th – 16th December 2016

Course overview:

Pavements are expected to perform satisfactorily with smooth riding surface under varying traffic, soil and environmental conditions. In the majority of the current design and evaluation procedures for flexible pavements, linear elastic analysis is used to evaluate stresses and strains induced by traffic loadings in the structure. However, the analysis based on these assumptions may not provide accurate qualitative and quantitative description of the pavements mechanical behaviour. Therefore with availability of better computing facility, it is rational to consider material nonlinearity in the structural analysis of the pavements.

The dynamic effect of vehicle-road interaction on the exerted loads on pavements is another important factor that has often been neglected in most of the state-of-practice design procedures. These effects are hardly negligible, especially with the increase of traffic weight and density in recent years. Also, rapidly increasing traffic and depleting natural resources have pushed the researchers to design long life pavements, which may be designed and built to last longer than 50 years without requiring major structural rehabilitation.

Pavement performance evaluation and monitoring is very essential in developing a rational pavement design criteria. Therefore field evaluation of structural strength of pavements using various non-destructive techniques, functional performance evaluation and performance monitoring through accelerated load testing facility needs to be brought to the knowledge of the professions in this area is very important.

This course has been designed to understand the pavement structure and its performance under dynamic vehicular loading under prevailing environmental conditions. This is a specialized course, which can be taken by higher level undergraduate students, post graduate students and research scholars working in this area of transportation engineering. Also practicing civil engineers would find this course very helpful. Internationally acclaimed academic professional will deliver lectures in the course and discuss the design concepts followed worldwide. The course will be planned and offered as per the norms set by IIT Bhubaneswar.

Course contents:

- Pavement Design Philosophy (including pavement balance concept)
- Vehicle Pavement Interaction and Traffic Loading
- Mechanistic-Empirical Design of Pavements
- Pavement Material Characterization
- Performance of Pavements with Cemented bases and Subbases
- Design of Long Life Composite Pavements
- Climate Change, Energy, Sustainability and Pavements
- Performance Evaluation through Accelerated Load Testing Facility
- Pavement Performance Monitoring, Modeling, and Management

Who can attend?

- Practicing civil engineers, researchers, and executives in the areas of civil, transportation engineering from various private and government organizations.
- Faculty members of academic institutions and R&D centres.
- UG, PG. and Ph.D. students working in the areas of civil & transportation engineering.

Course period and venue:

Duration: 12th - 16th December 2016

Venue: School of Infrastructure
Indian Institute of Technology Bhubaneswar
Arugul, Jatni, Khurdha-752050, Odisha, India

Course fee:

- Participants from industries: Rs. 5000
- Participants from academic/technical institutions and R&D units: Rs. 2000
- Students: Rs. 1000
- Participants from abroad : US $100

The fee includes all instructional materials, computer use for tutorials and assignments, and laboratory equipment usage charges. The course fee does not include accommodation. However, the participants will be provided accommodation on the payment basis.

Registration:

Register for the course online at:
http://www.gian.iitkgp.ac.in/GREGN/index
The last date of registration is 20th November 2016.
Number of participants for the course is limited to 50.

Course faculty:

Prof. Wynand JvdM Steyn
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Prof. Wynand Steyn has been involved in various research projects related to pavement engineering and materials, structural design, construction, rehabilitation, structural evaluation of road pavements and instrumentation. He has spent 19 years with Council for Scientific and Industrial research (CSIR), South Africa in various technical and managerial positions and is currently working as Professor and Head of the civil engineering at the University of Pretoria (UP), South Africa. His current research interests include Vehicle-Pavement Interaction, Pavement materials and Design, Pavement instrumentation, Accelerated Pavement Testing and Nanomaterials for civil engineering.

He has completed a synthesis of international accelerated pavement testing activities for the National Academies of Science in the USA, and is involved in projects with the South African National Roads Agency (pavement materials and vehicle loading projects) and the California Department of Transportation (vehicle-pavement interaction analysis of selected corridors). He is active in TRB through different committees since 2007, is chair of the Data Analysis Working Group (DAWG) of TRB since 2015, an Associate Editor of the International Journal of Pavement Engineering and serves on the board of the International Society for Asphalt Pavements (ISAP).

Course coordinator:

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Dr. U. C. Sahoo is an Assistant Professor at the School of Infrastructure, Indian Institute of Technology, Bhubaneswar. His areas of research interest include pavement analysis and design, pavement materials, pavement evaluation, low volume roads etc.