

Two-weeks Short-term course on Fundamentals of Geosynthetic Engineering

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

11th – 22nd July 2016

Course overview

Geosynthetics is a generic name representing a broad range of planer products manufactured from the polymeric materials, namely *geotextiles*, *geogrids*, *geonets*, *geomembranes*, *geocells* and *geocomposites*, which are used in contact with soil, rock and/or any other civil engineering-related material as an integral part of a man-made project, structure, or system. Geosynthetics are being used extensively worldwide as they offer the most efficient, cost-effective and environment-friendly solutions to several civil engineering problems as well some problems in mining, agricultural and aquacultural engineering. The rational design methods, based on sound concepts and standardized test techniques for determining the technical properties of geosynthetics, are now available, thus placing the geosynthetics on a firm base. The continued growth in application of geosynthetics attests to the fact that they have arrived as viable construction materials for their use in a sustainable and environment-friendly manner. Hence the geosynthetics have been included in the list of construction materials worldwide, including India. The subject of geosynthetics and their applications is known as the 'Geosynthetic Engineering', which is defined as follows: *Geosynthetic engineering deals with the application of scientific principles and methods to the acquisition, interpretation and use of knowledge of geosynthetic products for the solution to the problems in geotechnical, transportation, environmental and hydraulic engineering, and also in some areas of agricultural, aquacultural and mining engineering.*

In view of the wide applications of geosynthetics, the practicing civil and mining engineers/professionals and also all those dealing with geosynthetics-based solutions in the areas of agriculture and aquaculture engineering require an exposure to the fundamentals of geosynthetics and their applications. This course provides the fundamental concepts of this subject to students of all levels (BTech/MSc/MTech/PhD), executives, engineers and researchers from academic and technical institutions, construction companies and government organizations in the engineering fields of civil, mining, agricultural and aquacultural engineering.

The course participants will learn the concepts of various topics through lectures and tutorials. Also case studies and assignments will be shared to stimulate the field applications and research motivation of participants.

Course contents

- Basic description of geosynthetics
- Functions of geosynthetics
- Properties of geosynthetics and their evaluation
- Geotechnical applications
- Geotechnical applications
- Hydraulic applications
- Environmental applications
- Transportation applications
- Mining, agriculture and aquaculture applications
- Quality control, economic analysis and general application guidelines

Who can attend?

- Practicing civil, mining and environmental engineers, specialized contractors, planners, policy makers and regulators, and executives from private and government engineering organizations.
- Researchers from manufacturing, service and government organizations, including R&D laboratories.
- Senior B.Tech./BE/BSc Engineering students, M.Tech. and Ph.D. students working in the areas of civil, mining, agricultural, environmental, and aquacultural engineering

- Faculty from academic and technical institutions and R&D centres working in the areas of civil, mining, agricultural, environmental, and aquacultural engineering

Course period and venue

11th July-2016 to 22nd July-2016

School of Infrastructure
Indian Institute of Technology Bhubaneswar
Samantapuri, Bhubaneswar-751 013, Odisha, India

Course fee

- Participants from industries: Rs. 4000
- Participants from academic/technical institutions and R&D units: Rs. 3000
- Students: Rs. 1500
- 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 5th July 2016.

Number of participants for the course is limited to 60.

Course faculty



Dr. Sanjay Kumar Shukla
Associate Professor and Program Leader
Discipline of Civil and Environmental Engineering
School of Engineering
Edith Cowan University, Perth, Australia

<https://www.ecu.edu.au/schools/engineering/staff/profiles/associate-professors/associate-professor-sanjay-kumar-shukla>

Dr. Sanjay Kumar Shukla is Associate Professor and Program Leader of Discipline of Civil and Environmental Engineering at the School of Engineering, Edith Cowen University (ECU), Perth, Australia. His areas of research interest include geosynthetics and their applications, ground improvement, soil-structure interaction, soil dynamics, rock engineering, pavement engineering, and mining and environmental geotechnics. He has over 20 years of teaching, research and consultancy experience in the field of geotechnical and geosynthetic engineering. He has authored more than 150 research papers and 8 books, including four popular books on geosynthetic engineering. He serves on the editorial boards of several international journals, and he is founding editor-in-chief of the *International Journal of Geosynthetics and Ground Engineering*.

Course coordinator and address for correspondence



Dr. B. Hanumantha Rao
Assistant Professor
School of Infrastructure, IIT Bhubaneswar
Mobile: +91 9439739910
Email: bhrao@iitbbs.ac.in
<http://www.iitbbs.ac.in/profile.php/bhrao/>

Dr. B. Hanumantha Rao is an Assistant Professor at the School of Infrastructure, Indian Institute of Technology, Bhubaneswar. His areas of research interest include development of sensors for soil characterization, expansive soils, behaviour of unsaturated soils, geotechnics of waste and waste utilization, and electrical & thermal properties of soils.