

Geotechnical Structures with Geosynthetics, Reinforcement and Confinement

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Overview of the course:

Geotechnical engineering deals with analysis, design, construction, maintenance and renovation of geotechnical structures, such as foundations, retaining walls, slopes, embankments, pavement structures, and earth dams. Any practical solution to the soil or rock problem relating the geotechnical structure requires the application of engineering judgment and experience, which can be acquired by the regular professional practice. This course focuses on the geotechnical structures constructed using geosynthetics, reinforcement and confinement. The fundamentals of geomaterials (soils, rocks and similar waste materials such as fly ashes, mine tailings, etc.) are generally applied to deal with analysis, design and construction of foundations and other geotechnical structures. Hence, this course also covers the basic concepts of geomaterials along with detailed descriptions of investigation of surface and subsurface conditions of the ground, ground improvement techniques and basic concepts of geosynthetics.

Course Contents:

- Fundamentals of geomaterials (soils, rocks and similar waste materials such as fly ashes, mine tailings, etc.)
- Methods and phases of site investigation
- Core concepts of ground improvement techniques
- Basic description, functions and properties of geosynthetics
- Reinforced foundations
- Reinforced pavement structures
- Reinforced retaining walls
- Reinforced slopes and embankments
- Drainage systems with geosynthetics in geotechnical structures
- Geotechnical structures with confinement

Modules	This course consists of following schedule 26 September 2016 to 7 October 2016 Number of participants for the course will be limited to fifty.
You Should Attend If You are	<ul style="list-style-type: none"> ▪ Students of BTech, MTech, PhD, research scholars and faculty members of academic institutions and technical institutions. ▪ Executives, engineers and researchers from manufacturing, service and government organizations, including R&D laboratories.
Fees	<p>The participation fees for attending the course is as follows: Overseas Participants: US\$ 200 Industry/ Research Organizations: Rs. 5000 Academic Institutions: Rs. 2000 Research Scholars/Students/Alumni: Rs. 1000 (Rs. 500 for SC/ST students)</p> <p>After registration on GIAN portal http://www.gian.iitkgp.ac.in/GREGN/index, the candidates are advised to submit the prescribed fee in the form of DD in favor of “Registrar, DTU” payable at Delhi along with printout of online submitted application form to Professor A. Trivedi, Course Coordinator (GIAN), Department of Civil Engineering, Delhi Technological University, Bawana Road, Delhi-110042 on or before 15.09.2016. The shortlisted participants will be informed through e-mail.</p> <p>The above fee includes all instructional materials, computer use for tutorials and assignments, laboratory equipment usage charges, and free internet facility. The course fee does not include boarding and lodging.</p>

The Faculty



Dr Sanjay Kumar Shukla is Founding Editor-in-Chief of the International Journal of Geosynthetics and Ground Engineering (Springer International Publishing, Switzerland). He is an Associate Professor of Civil Engineering and the Founding Program Leader of the Discipline of Civil and Environmental Engineering at the School of Engineering, Edith Cowan University (ECU), Perth, Australia. He graduated in 1988 from Ranchi University, Ranchi, and earned his MTech in 1992 and PhD in 1995 from the Indian Institute of Technology Kanpur, India. Dr Shukla has held a visiting appointment at the School of Engineering and Physical Sciences, James Cook University, Australia in 2008 where he has been an Adjunct faculty during 2008 to 2011. He has also held visiting appointments at the Department of Civil and Structural Engineering, the Hong Kong Polytechnic University, Hong Kong during 2002 to 2005. He was Associate Professor of Civil Engineering at the Department of Civil Engineering, IIT (BHU), Varanasi, India prior to joining ECU in 2009. He has over 20 years of teaching, research and consultancy experience in the field of Geotechnical and Geosynthetic Engineering. He has authored/co-authored more than 150 research papers and technical articles including over 100 refereed journal publications. He is also author/co-author/editor of 8 books, including 4 textbooks, and 12 book chapters. His books titled 'Core Principles of Soil Mechanics' and 'Core Concepts of Geotechnical Engineering' published by ICE Publishing London are very popular textbooks worldwide. He serves on the editorial boards of Ground Improvement, Geotechnical Research, International Journal of Geotechnical Engineering, Indian Geotechnical Journal, and Cogent Engineering. He is a fellow of Engineers Australia, a life fellow of Institution of Engineers (India) and Indian Geotechnical Society, a member of American Society of Civil Engineers (ASCE) and International Geosynthetics Society, and a life member of Indian Roads Congress, Indian Society for Rock Mechanics and Tunnelling Technology, Indian Society for Technical Education, and Coal Ash Institute of India.



Dr A. Trivedi presently serves as a Professor of Civil Engineering and the Dean of Industrial Research and Development at Delhi Technological University, Delhi, India. His previous affiliations include Professor of Civil Engineering and Dean, Faculty of Technology at University of Delhi, Dean of Continuing Education at Delhi College of Engineering, Head of the Civil, and Environmental Engineering Departments at University of Delhi, and Head of the Department of Civil Engineering at Delhi Technological University, Delhi and Thapar University (then TIET) Patiala. He obtained his Bachelor and Master degrees from REC (now NIT), Kurukshetra and PhD from TIET (now Thapar University), Patiala, India. He has more than fifty research papers, as lead author in the reputed journals, conferences and symposia. He is a fellow of Indian Association of Structural Engineers and an active member of several professional societies namely, ASCE, ISRM, ISTE, and IGS, Delhi. He has supervised a number of prestigious consultancy and research projects. He has guided more than fifty Master's and PhD candidates for the award of degrees at Thapar University, Patiala, University of Delhi and Delhi Technological University, Delhi, India. He also has a couple of patents and PCTs to his credit. His current interests include mechanics of fractured masses, hydraulic flow amid cemented and un-cemented ash fills, liquefaction of soils, and biocemented soils and rocks.

Course Coordinator

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For Registration:
<http://www.gian.iitkgp.ac.in/GREGN/index>

Geotechnical Structures with Geosynthetics, Reinforcement and Confinement

Tentative Course Schedule

Day 1: 26 September 2016 Monday

Registration: 9:00 AM to 10:00 AM

Inauguration: 10:00 AM to 11:00 AM

Lecture 1 : 11.30 AM to 12:30 PM

Fundamentals of geomaterials

Lecture 2: 12:30 AM to 1:30 PM

Soils, rocks and similar waste materials such as fly ashes, mine tailings, etc.

Tutorial 1: 2:00 to 3:00 PM

Fundamentals of geomaterials

Day 2: 27 September 2016 Tuesday

Lecture 3 : 10.00 AM to 11:00 PM

Methods and phases of site investigation-I

Lecture 4: 11:30 AM to 12:30 PM

Methods and phases of site investigation-II

Tutorial 2: 1:30 to 2: 30 PM

Methods and phases of site investigation

Day 3: 28 September 2016 Wednesday

Lecture 5 : 10.00 AM to 11:00 AM

Core concepts of ground improvement techniques-I

Lecture 6: 11:30 AM to 12:30 PM

Core concepts of ground improvement techniques-II

Lecture 7: 1:30 PM to 2:30 PM

Core concepts of ground improvement techniques-III

Tutorial 3. 2:30 PM to 3:30 PM

Core concepts of ground improvement techniques

Day 4: 29 September 2016 Thursday

Lecture 8 : 10.00 AM to 11:00 AM

Basic description, functions and properties of geosynthetics-I

Lecture 9: 11:30 AM to 12:30 PM

Basic description, functions and properties of geosynthetics-II

Lecture 10: 1:30 PM to 2:30 PM

Basic description, functions and properties of geosynthetics-III

Tutorial 4: 2:30 PM to 3:30 PM

Basic description, functions and properties of geosynthetics

Day 5: 30 September 2016 Friday

Lecture 11 : 10.00 AM to 11:00 AM

Reinforced foundations-I

Lecture 12: 11:30 AM to 12:30 PM

Reinforced foundations-III

Lecture 13: 1:30 PM to 2:30 PM

Reinforced foundations-III

Tutorial 5: 2:30 PM to 3:30 PM

Reinforced foundations

Day 6: 1 October 2016 Saturday
Lecture 14 : 9.00 AM to 10:00 AM
Reinforced pavement structures-I
Lecture 15: 10:00 AM to 11:00 PM
Reinforced pavement structures-II
Tutorial 6: 11:30 AM to 12:30 PM
Reinforced pavement structures

Day 7: 2 October 2016 Sunday
Lecture 16 : 9.00 AM to 10:00 AM
Reinforced retaining walls-I
Lecture 17: 10:00 AM to 11:00 PM
Reinforced retaining walls-II
Lecture 18: 11:30 AM to 12:30 PM
Reinforced retaining walls-III
Tutorial 7: 1:30 PM to 2:30 PM
Reinforced retaining walls

Day 8: 3 October 2016 Monday
Lecture 19 : 9.00 AM to 10:00 AM
Reinforced slopes and embankments - I
Lecture 20: 10:00 AM to 11:00 PM
Reinforced slopes and embankments – II
Tutorial 8: 11:30 AM to 12:30 PM
Reinforced slopes and embankments

Day 9: 4 October 2016 Tuesday
Lecture 21: 9.00 AM to 10:00 AM
Drainage systems with geosynthetics in geotechnical structures-I
Lecture 22: 10:00 AM to 11:00 PM
Drainage systems with geosynthetics in geotechnical structures-II
Tutorial 9: 11:30 AM to 12:30 PM
Drainage systems with geosynthetics in geotechnical structures

Day 10: 5 October 2016 Wednesday
Lecture 23: 9.00 AM to 10:00 AM
Geotechnical structures with confinement-I
Lecture 24: 10:00 AM to 11:00 PM
Geotechnical structures with confinement-II
Tutorial 10: 11:30 AM to 12:30 PM
Geotechnical structures with confinement

Examination/Evaluation: 1:30 PM to 2:30 PM
Valedictory Function: 4:30 PM to 5:30 PM