

Modern Geotechnical Engineering

MHRD Scheme on Global Initiative on Academic Network (GIAN)

Instructor: Dr. Vikas Thakur, Professor, NTNU, Norway

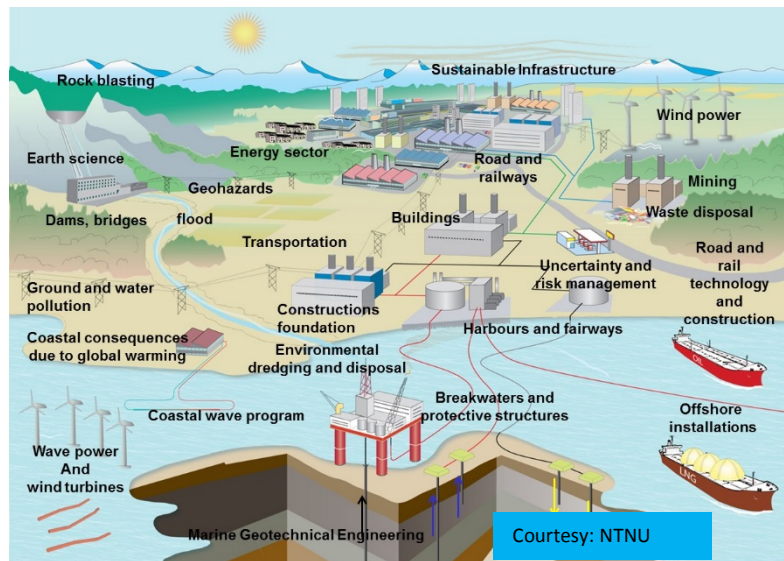
Venue: Virtual Class Room, NIT Raipur, G.E. Road Raipur, Chhattisgarh, India

Dates: 21st December–28th December 2015

Brochure, [Apply Online](#)

Overview

Necessity to improve the geotechnical solutions for the design and construction of a cost-effective infrastructure for society, environmental sustainability and the responsible exploitation of natural resources, waste disposal, including environmentally friendly energy has been felt for long. Accordingly, through this short course, the course participants will learn about geotechnical solutions (design, analysis and control) to these issues. Through this short but intensive course on modern geotechnical engineering will introduce, among other, the state-of-the-art methods and cutting-age technologies adopted for the geo-hazards assessment, smart solutions to geo-environmental challenges. This course will provide up to date and high quality knowledge about the field by the international expert. Capacity building amongst the participants in terms of handling geotechnical and geo-environmental challenges using recent and advance methodology, and add-on experience on real life geotechnical problems and their solutions will be of the major focus in the course.



The course consist of two modules:

A: Geo-hazards Assessment: December 21st–December 24th 2015

B: Solutions to Geo-environmental Hazards in Chhattisgarh: December 25th - December 28th

Objectives

The primary objectives of the course are as follows:

1. Up to date and high quality knowledge about the field by the international expert
2. Capacity building amongst the participants in terms of handling geotechnical challenges using recent and advance methodology
3. Hand-on experience on real life geotechnical problems and their solutions.

Course Details:

The course is divided into two modules. There will be a written exam at the end of each module. A proposed lecture plan is shown in the table below.

Day	Date	Time	Topic(s)	Teaching Faculty
Module A: Geo-hazards Assessment				
1	21.12.2015	12:00-15:00	Elements of Geo-hazards (stability) assessment	V Thakur
2	22.12.2015	10:00-13:00	Short term stability of natural and man-made slopes	V Thakur
3	23.12.2015	10:00-13:00	Long term stability of natural and man-made slopes	V Thakur
4	24.12.2015	10:00-13:00	Probabilistic approach instability analysis	V Thakur
4	24.12.2015	14:00-17:00	Examination	V Thakur / L K Yadu
Module B: Solutions to Geo-environmental hazards in Chhattisgarh				
5	25.12.2015	10:00-13:00	Geo-environmental hazards: Introduction	L K Yadu / S Bajpai / V Thakur
6	26.12.2015	10:00-13:00	Solutions to Geo-environmental hazards	L K Yadu / S Bajpai / V Thakur
7	27.12.2015	10:00-13:00	Solutions to Geo-environmental hazards	L K Yadu / S Bajpai / V Thakur
8	28.12.2015	10:00-13:00	Field excursion	L K Yadu / S Bajpai / V Thakur
8	28.12.2015	14:00-17:00	Examination	L K Yadu / V Thakur

Learning outcome in terms of knowledge and skills is described, lecture-wise, in the table below.

Day	Learning outcomes in term of knowledge and skills;
Module A: Geo-hazards Assessment	
1	Knowledge about various geo-hazards such as Landslide, earthquake, debris flow. Essentials of stability analysis And Safety principles
2	Quantitative assessment of short-term stability of natural slopes, dam and embankments using the method of slices and Janbu's design chart method. Hand calculation and or computer based exercises.
3	Quantitative assessment of long-term stability of natural slopes and embankments using the method of slices and Janbu's design chart method. Hand calculation and or computer based exercises.
4	How to characterize and model uncertainties in geotechnical parameters (soils and rocks), quantify variability in soil profiles, loading and resistance factors as well as the calculation methods. Describing and formulating a geotechnical problem using a reliability approach .Hand-on experience. Case studies and examples describing and formulating a geotechnical problem using a reliability approach
Module B: Solutions to Geo-environmental hazards in Chhattisgarh	
5	Inception of geoenvironmental engineering, types of geo-environmental hazards in saturated and unsaturated soils
6	Understanding about the geo-environmental challenges in India and in Chhattisgarh: reasons and effects. Knowledge about the modern approaches to handle geo-environmental challenges
7	Understanding about the geo-environmental challenges in India and in Chhattisgarh: reasons and effects. Knowledge about the modern approaches to handle geo-environmental challenges
8	Practical experience. Field excursion to some construction sites/ waste disposal sites

Who Can Attend

- Executives / engineers / researchers from civil engineering, mining engineering, geology belonging to governmental institutes / consultancy firms / research institutes / industries.
- Student (BTech/MSc/MTech/PhD) or Faculty member from reputed academic institutions and technical institutions.

Registration Fees

Participants from abroad: US \$500,

Industry/ Research Organizations: INR 10,000/-

Academic Institutions: INR 3,000/-,

Student: INR 1500/-

The above fee includes all instructional materials, computer use for tutorials, and free internet facility during lecture and practical session. The participants will be provided accommodation on payment basis if available.

Course Coordinators

Dr. Laxmikant Yadu, Assistant Professor, Civil Engineering, NIT Raipur, G.E. Road Raipur, Chhattisgarh, India.

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