



GROUND IMPROVEMENT

PROF. DILIP KUMAR BAIDYA

Department of Civil Engineering
IIT Kharagpur

PRE-REQUISITES : Final year B Tech/BE students with knowledge of Soil Mechanics and Foundation engineering, any ME/M tech students

INTENDED AUDIENCE : B Tech/BE Final year and M Tech/ME students

COURSE OUTLINE :

Ground improvement is a very essential activity in geotechnical engineering when construction occurs in problematic soils and under difficult geotechnical conditions. The state of the practice for ground improvement technologies is ahead of theory. Most of the books on ground improvement focus on concept, application and case study and in a few books focus is on principles and design methods of ground improvement. This course will focus on both parts.

ABOUT INSTRUCTOR :

Prof. Dilip Kumar Baidya is presently in Civil Engineering at IIT Kharagpur, graduated in Civil Engineering in 1987 from Bengal Engineering College Sibpur and obtained ME and Ph D from IISc Bangalore in the year 1989 and 93, respectively. Have 25 years of experience in teaching and research and guided more than 25 M Tech dissertations and 7 Ph D thesis on Geotechnical Engineering. Published more than 100 papers in National/international journals and conferences out of which 3 papers received best paper award. Visited different countries for presenting papers in the international conferences and served 2 years as Faculty members in the University of West Indies, Trinidad and Tobago. Besides teaching and research, provided consultancy services to various industrial problems. Held several administrative positions at IIT Kharagpur which includes responsible position like Vice Chairman/Chairman JEE for IIT Kharagpur zone, Prof In-charge Examination etc. Fellow of Indian Geotechnical Society and member of International Society for Soil Mechanics and Geotechnical Engineering, Elected member of Executive committee of IGS for 2017-18.

COURSE PLAN :

Week 1: Introduction

Week 2: Shallow Densification

Week 3: Deep Dynamic Compaction

Week 4: Rapid Impact Compaction

Week 5: Vibrocompaction

Week 6: Drainage And Dewatering

Week-7: excavation and replacement

Week-8: preloading and vertical drain for densification

Week-9: grouting methods

Week-10: chemical stabilisation

Week-11: soil nailing and ground anchors

Week-12: use of geosynthetics in various ground improvement problems