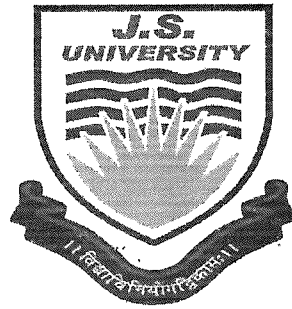


J.S. University, Shikohabad

Established by UP Govt. Act No. 07 of 2015

Recognized by U.G.C. under section 2 (f) of Act-1956



Value Added Course

(Ground Improvement Techniques)

Faculty of CIVIL ENGINEERING



J.S. University, Shikohabad
Faculty of Civil Engineering

Value Added Course

AY: 2022-23

Ground Improvement Techniques

Learning Objective:

This Course will provide knowledge of Ground improvement methodology


Duration: 30 Hours. (Theory and Practical)

Course Outcomes: -

Maximum Exposure has to be given on Practical Oriented

On successful completion of the course students will be able to:

- 1) Identify the purpose of ground improvement techniques to obtain the suitable construction site for long-lasting structures.
- 2) List the problematic soils and its characteristics to select the suitable method for ground improvement.
- 3) Illustrate the various methods of ground improvement techniques to increase load bearing capacity of beneath and surface soils.
- 4) Apply the methods of physical, chemical, mechanical and hydraulic for obtaining void less soils.
- 5) Explain the various grouting techniques and its applications for improving loadbearing of beneath soils.
- 6) Outline the contribution of grouting materials and their influence on soils for greater load carrying capacity.
- 7) Recall the importance of admixtures and its composition for injecting the material into the soils.
- 8) Analyze the practical applications of reinforced soil and grid reinforced soils for better strength and durability of soils

	J.S. University, Shikohabad Faculty of Civil Engineering	Value Added Course
		AY: 2022-22

Syllabus Outline

1. Module-1

Introduction

Formation of soil, major soil types, collapsible soil, expansive soil, reclaimed soil, sanitary land fill, ground improvements; objective, potential. General principles of compaction: Mechanics, field procedure, quality control in field.

2. Module-2

Ground Improvement In Granular Soil

In-place densification by (a) Vibro floatation (b) Compaction piles in sand (c) Vibro compaction piles (d) Dynamic compaction (e) Blasting . Ground improvement in cohesive soil: Preloading with or without vertical drains. Compressibility vertical and radial consolidation, Rate of consolidation, Preloading methods. Types of drains, Design of vertical drains, Construction techniques. Stone column: Function, Design principles, load carrying capacity, construction techniques, settlement of stone column foundation.

3. Module-3

Ground Improvement by Grouting & Soil Reinforcement

Grouting in soil: Types of grout, desirable characteristics, Grouting pressure, Grouting methods. Soil Reinforcement – Mechanism, Types of reinforcing elements, Reinforcement- Soil interaction, Reinforcement of soil beneath roads, foundation. Soil Stabilization: Lime Stabilization – Base Exchange mechanism, Pozzolonic reaction, lime-soil interaction, lime columns, Design of foundation on lime column.





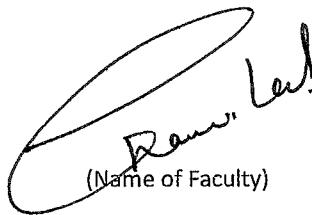
J.S. University, Shikohabad
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AY: 2022-22

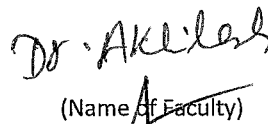
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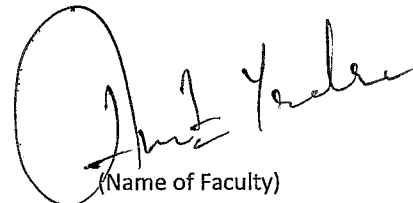

(Name of Faculty)

Course Coordinator

Er. Chhavi
Lal


(Name of Faculty)

Dean Academics


(Name of Faculty)

Director/Principle/Dean of
Faculty/Department

Er. Amit Yadav