CE/BOS/ CE E 41/0210

K L UNIVERSITY
GROUND IMPROVEMENT TECHNIQUES (09 - CE E 41)

SYLLABUS

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UNIT – 1

Necessity of ground improvement- objectives, Introduction to different methods - Mechanical stabilization- Types of rollers, effect on engineering properties- Chemical stabilization- cement stabilization- factors affecting soil cement mixing-admixtures- lime stabilization-effect of lime on soil properties-construction of lime stabilized bases-bituminous stabilization

UNIT-2

Dewatering-well-point system-electro osmosis-pre-loading- sand drains- methods of installation - PVD's, Types, Design, construction -stone columns in clays - vibro-flotation in sands and clays, Designs as per BIS and case histories

UNIT-3

Introduction to grouts and grouting- basic functions – groutability ratio –classification of grouts- properties of grouts - grouting applications- Impermeability grouting seepage control in soil under dams and for cut off walls- seepage control in rock under dams-stabilization grouting for under pinning.

UNIT-4

Geosynthetics – Types, functions, typical Applications of filtration and drainage, use in road /airport pavements and strengthening existing pavements

UNIT-5

Earth Reinforcement- mechanism and concept - laboratory behavior of reinforced soil-Reinforced Soil retaining Structures – Types of Reinforcements, fascia and connections - design concepts and stability analysis – Use in India

TEXT BOOKS:

1. IRC (1995). Ground Improvement Techniques
2. Stabilization of clays, Indian Raods congress, New Delhi , Spl Publication No. Venkatappa Rao, G and Ramana, G.V. (2000
3. Relevant I.S.Codes

REFERENCES :

1. Bowles, J.F. Foundation Design
2. Das, B.M, Geotechnical Engineering
3. Jones, C.J.F.P.Earth Reinforcement and Soil structures
4. Koerner, R.M. (2005) Designing with Geotextiles,